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THE HISTORY OF MENTAL NURSING

THE PRESIDENTIAL ADDRESS AT THE ONE HUNDRED AND TWENTIETH ANNUAL MEETING OF THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION HELD AT CANE HILL HOSPITAL, 13 JULY, 1960

By

ALEXANDER WALK, M.D., D.P.M.

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ROUND about thirty-five years ago, when I was first introduced to the affairs of our Association by two of my chiefs, A. W. Daniel, who was secretary of our Education Committee, and John R. Lord, who officially or unofficially filled almost every other available office—at this time I became aware that there were two categories of President; those elected because of their professional eminence, and those who were rewarded for their services to the Association—and of course there were many who qualified under both headings. Now, in spite of Dr. MacNiven's generous words, I feel that my own election has come about entirely through the kindness and indulgence of our members. It is recorded in divers places in our annals that a warm welcome is traditionally extended to newly-joined members, and I can testify that I have throughout experienced this kindness at your hands irrespective of the rank I happened to occupy or of my success or lack of success in the promotion race. For this experience, of which today marks the culmination, I am truly grateful; and I can confidently claim that in loyalty and affection towards the Association, though in no other respect, I can stand comparison with the greatest of my predecessors.

I am fortunate in that, unlike some previous Presidents, I have had no difficulty in finding a fresh subject upon which to address you. As your librarian you will naturally expect me to choose a literary or historical topic, and several of these readily suggested themselves as appropriate; for instance, having taken some part in the parliamentary work of the Association, I might have attempted to survey the history of mental health legislation and of the Select Committees and Royal Commissions which have grappled with the problem from 1763 to the present time. Or I might have built up an address

based on the life and opinions of Sir John Bucknill, who edited our journal with such vigour during the first ten years of its existence, and who spoke so forcefully from the Presidential Chair exactly a hundred years ago. But it so happens that on your recommendation I have been closely concerned with psychiatric nursing as an examiner and member of the General Nursing Council, and it seemed to me a more urgent matter to attempt to place on record something of the history of mental nursing, as well as to organize as part of this meeting a full-scale discussion on the training of the psychiatric team, in which representatives of the nursing organizations could join. You will certainly be aware of the almost complete neglect of mental nursing in the current histories, whether of nursing or of psychiatry; Zilboorg and Henry give the subject a single page, the last in their book; there is no reference at all in Anne Austin's otherwise excellent *History of Nursing Source Book*; Jensen's recent *History of the Nursing Profession* also ignores mental nursing with the one curious exception of a report on recent developments in this country, supplied by the General Nursing Council and mentioning the introduction of the new training syllabus; and so on.

To deal adequately with the development of mental nursing even during what one may call historic times—the last century and a half—would of course be far beyond the compass of an address of this kind. The Bible tells us to “consider the years of many generations”; a better translation, I think, would be “get to understand the years generation by generation”—we are in other words constantly to relate events to the conditions existing in each period. Thus we would need to compare the progress of mental nursing at every stage with the corresponding state of other branches of nursing and of psychiatric science and practice, and with the general social conditions to which our own branch is so peculiarly sensitive. This background to events and developments I can only refer to intermittently, and must leave much to be supplied by your own knowledge and imagination.

I feel that I cannot do better than begin with the glorious work of St. Vincent de Paul and Ste. Louise de Marillac in 17th century Paris. In his own institution, St. Lazare, Vincent provided care and treatment, not only for the mentally ill, but also for what we would now recognize as psychopathic personalities. With little aid from orthodox medicine, but fully recognizing that he was dealing with sick people, he and his brotherhood relied on moral means of treatment. Praising his helpers, he told them that this work was all the more meritorious when they derived least natural satisfaction from it, when for instance they were doing good in secret to patients who showed no gratitude. In 1655 Louise de Marillac (also known as Mme Le Gras), who was the directress of Vincent's other order of the Daughters of Charity, was asked to take charge of the nursing of the insane and senile patients at the Petites-Maisons. Vincent's admonition to the nurses is memorable: “Say to yourselves: ‘I am going to honour in my patients the incarnate wisdom of God, who willed that He himself should embrace this state in order to sanctify it like all others.’” Several cures of acute mental illness were reported within a short time. The name of one nurse of those early days, Sister Nicole, has been preserved, and of her it is recorded that though often roughly treated and several times wounded by patients she was never known to show the least resentment towards them.

The Brothers of the Order of St. John of God also engaged in the care of the insane from about the same period, and were responsible among others for the still flourishing hospital of Charenton. A number of French authors

have shown in recent years that a more liberal attitude to mental illness existed in the 18th century than had previously been supposed, and far more interest was taken in their legal protection and medical treatment. Nevertheless, after the reforms of Pinel and Esquirol, it was generally considered that those hospitals in which the nursing remained in the hands of religious communities were apt to lag behind in the general progress which was being made, and in this country there was, for this reason, little inclination to make use of such communities. I need hardly add that both the Sisters of Charity and the Order of St. John of God continue to this day to provide psychiatric nursing services of a high standard in many parts of the world.

The vast establishments of Bicêtre and the Salpêtrière, each, it has been said, "a pandemonium of all the miseries", were from 1793 onwards the scene of the classical labours of Philippe Pinel. Of Pinel, as we all know; but also of his indispensable collaborator, the man whom he calls the "Governor" or "Chief",—today we would say "Chief Male Nurse"—Jean-Baptiste Pussin. Not appointed by Pinel, but in office before Pinel became physician to Bicêtre, Pussin was already bringing into action principles of which Pinel thoroughly approved. "He exercised" says Pinel "the vigilance of a tried and watchful parent . . . cruel treatment of every description was banned . . ." Further acquaintance only increased Pinel's respect for his fellow-worker, whom in his book he constantly praises for his qualities of heart and head. It was the close partnership of Pinel and Pussin, considering in daily conference the indications for the moral treatment of each patient, that enabled the chains to be abandoned,* and an orderly and humane régime to prevail.

Now Pussin had himself been a patient at Bicêtre, suffering, it is believed, from depression in early manhood; and it became his policy to choose many of his assistants from among recovered or convalescent patients. This practice was heartily approved of by Pinel, who describes these recruits as "averse from cruelty though the recollection of what they had themselves experienced and disposed to humanity and kindness from the value which for the same reason they could not fail to attach to them". At the Salpêtrière, to which Pinel, and later Pussin, were successfully transferred, reform was not achieved until 1801, when many of the existing staff were replaced by convalescents. In his account of these events Pinel draws a sympathetic picture of the hardships endured by the nurse in charge of the acute patients' court, though he has no constructive remedy to suggest.

The female staff were presided over by Mme Pussin, with the title of "Governess", and she, like her husband, earned Pinel's praise for her good-humoured skill and resourcefulness; he gives examples ranging from simple

* This was done, not, as is often stated, by a sudden dramatic act of Pinel's, but after several years of patient work in the face of difficulties and opposition. Pinel himself says:

"The harmful effects of the use of chains had given me much concern during the time I carried out the duties of Physician to Bicêtre, and it was not without extreme regret that I found myself unable to witness the termination of this barbaric custom [because of his transfer from Bicêtre to the Salpêtrière] but on the other hand I felt quite confident, trusting as I did in the skill of the Superintendent (M. Pussin), whose heart was as set as my own on putting an end to this negation of the true principles of treatment. Success was happily achieved by him two years later, on the 4th of Prairial, year 6 [May 1798]. Forty unfortunate patients, who had languished in irons for various lengths of time, were set at liberty and allowed to move freely about the airing courts, with their movements merely controlled by the use of the strait-waistcoat."

Pinel explains that the same result was achieved three years later (i.e., 1801) at the Salpêtrière, again with the assistance of Pussin, who had been transferred at Pinel's special request.

persuasion to elaborate stratagems concerted with her husband. It is noteworthy that her sphere of work was not confined to the female side, and in fact all the anecdotes related by Pinel concern her work among the male patients.

In England at this time there was no tradition of nursing either by religious communities or by recruits drawn from among former patients. Haslam in his work on "Moral Management", published in 1817, is under no illusion as to the depressed state of the occupation of "keeper". He emphasizes the need for careful and sympathetic direction by the physician in charge of the case, and he points out the severe handicaps under which the staff worked, especially through their altogether insufficient numbers. It appears that in the old Bethlem, abandoned in 1815, there were no more than five attendants for 120 patients, and only two for 66 women. Haslam urges "some plan to improve the condition of the keeper" and throws out two suggestions which it took a hundred years to bring into effect—"the establishment of a fund, and a provision for the later period of their lives, to which during their employment they should contribute", and the formation of "a register of persons calculated to officiate as keepers—an essential service to the public and the medical profession".

A more encouraging view can be derived from what is known of certain individual attendants and nurses whose names have been recorded. There is Sam Roberts, who attended William Cowper during his sojourn in Dr. Cotton's establishment at St. Albans, and who afterwards served him devotedly in private. There was the Miss James who took charge of Mary Lamb—one of "four daughters of a respectable Welsh clergyman who all became nurses at Mr. Warburton's, Hoxton". Warburton's Whitmore House had no great reputation in the 1820s and was in fact one of those most criticized at public inquiries; nevertheless Charles Lamb has no hesitation in telling a correspondent that "you may be very properly accommodated" by applying there for a nurse for a private case. And when in 1796 the newly-opened Retreat required a matron or "female superintendent", she was readily obtained from an existing private asylum, Dr. Fox's Brislington House at Bristol. Her name was Katherine Allen, and she and her husband, the first "superintendent" or chief male nurse, George Jepson, may be regarded as among the fathers and mothers of mental nursing in this country.

I have elsewhere drawn attention to the passage in the little-known "Sketch of the Retreat", published in 1828, in which George Jepson is given the credit for the introduction of the methods of moral treatment for which the Retreat became famous—how "after the exercise of some severity towards a violent patient he passed a sleepless night in anxious cogitation", and thereupon determined "to try an opposite system—that which presumed the patient to be generally capable of influence through the kindly affections of the heart and the medium of the understanding". In Samuel Tuke's "Description of the Retreat" of 1813, examples are given of Mr. Jepson's inventiveness—in the art of gaining the patient's confidence, the introduction of outdoor occupations, the use of a liberal supper in promoting sleep, and the social value of Mrs. Jepson's tea parties. It appears, moreover, that when in 1814 the scandals of the York Asylum were exposed and the whole of the staff there were dismissed the Jepsons were called in to reorganize the asylum, with the result that within a short time its reputation was quite re-established.

A different example of the work of a married couple was provided shortly afterwards at Wakefield Asylum (now Stanley Royd Hospital), in the same

county. Wakefield, opened in 1818, was a conscious attempt to apply Retreat principles to a county asylum of some 150–200 beds. For this the magistrates appointed as superintendent a medical man, Dr. (later Sir William) Ellis, but continued the practice of naming the superintendent's wife as the matron. From 1830 Dr. and Mrs. Ellis held the same positions at the much larger Middlesex Asylum at Hanwell. Ellis's "Treatise on Insanity", published in 1836, gives numerous examples of his wife's skill and readiness of wit in handling difficult patients, in which she must have rivalled Mme Pussin. She it was who when a violent patient seized her by the hair and told her she could "twist her head round" answered with perfect calmness: "Yes, you could; but I know that you would not hurt a single hair." She vigorously supported her husband's well-known efforts to create and extend patients' occupations. It was her idea to introduce the making of fancy articles, suited to the patients' tastes, and sold to the public at a permanent "bazaar" within the hospital.

Moreover, Ellis expressed what were for his times the most advanced views on the possibilities of mental nursing as a career for women. He called for "a group of young and highly gifted females, willing from love of God and man to assist the matron in her anxious efforts" . . . and for "ladies who have had such a portion of instruction as to enable them carefully and judiciously to apply under the direction of the professional man a proper medical and moral treatment".

This seems an appropriate point to mention another of the "fathers" of mental nursing, Thomas Digby, who in the year in which Ellis wrote his textbook set out from England to take charge of the first specially built asylum in Australia. Digby had been an attendant at St. Luke's Hospital and in Dr. A. R. Sutherland's private asylum. Ellis, in a postscript to his book expressed regret at the position not having been entrusted to a medical man, but it is clear from subsequent events that in the prevailing circumstances an experienced attendant was far more likely to achieve success. His devoted and indefatigable work was brought prominently to the notice of our Association in 1953 by Professor Bostock of Brisbane.

So far, most of what I have recorded has been anecdotal. Ellis's book, however, gives us a brief account of the staff's life and duties. He tells us that there were two keepers to each male ward, one of whom was a mechanic. The latter collected from his ward and others the employable patients and took them to his workshop or to other occupations; the other keeper, after routine duties, employed the remaining patients at such work as coir-picking or twine-spinning. Each female ward had two nurses, and again one took a party of patients out on the land, while the other worked and kept her patients working at sewing, mending, basket making and so forth. A set of rules is also appended, among which are included injunctions to the staff to perform their duties in a mild and humane manner and to be strictly decorous in behaviour.

It will be noticed that the words "keeper", "attendant", "nurse" and sometimes "superintendent" are used quite indifferently and interchangeably at this period, except that "nurse" is generally confined to women. Similarly in France one finds the terms "gardiens", "domestiques", "gens et filles de service" and "infirmiers" used indifferently. There are no grounds for the widespread assumption that the term "nurse" indicated a more therapeutic rôle than the others. This is neatly shown in a passage from John Conolly's "Indications of Insanity", published in 1828. "Every patient" he says, "should have a super-

intendent or keeper with him during a great part of each day, so long as there remains a hope of cure . . . every opportunity should be taken of effecting the restoration of the patient to mental health . . . to converse with, to amuse, to instruct the patients is the great business of each day."

In his later work on the "Construction and Government of Asylums" (1847), Conolly uses the terms "attendants", "nurses", and "staff", and nowhere else is there to be found such a full discussion of their work and daily life. To enable the "no-restraint" system to be carried out in its completeness, as "regulating every word, look and action of all who come in contact with the insane", Conolly insists on his personal selection of candidates. Given a fair remuneration and a prospect of comfort, he has no difficulty in recruiting from "the class of persons qualified to be upper servants". He does not expect to be allowed more than one attendant to about 15 patients, though his real wish is for one to five, as in private asylums. Their duties, he says, begin early, are incessant during the day, and end late. These duties he describes hour by hour in minute detail, without at any time allowing the reader to forget the spirit in which they are meant to be carried out. In cases of refusal of food, for instance, kind treatment, varied food and patient persuasion will overcome the difficulties, and the attendants must make themselves acquainted with all the eccentricities of particular patients. At bedtime, after a day "during which he has scarcely sat down for a quarter of an hour at a time", the attendant still has to bethink himself of the "appliances of dress and bedding" required in the night now that restraint has been abolished. A supper of bread and cheese and ale; arrowroot with a little brandy, a glass of water or a warm bath or even a little tobacco or snuff may be better than any sedative. Conolly was unable to solve the problem of night-watching, as it was called; the best that could be done was to arrange for two attendants on each side of the hospital, who had already completed a day's work, to sit up at night; he reports however that Dr. Gaskell of Lancaster is employing night-attendants with few or no day-duties, and by this means has got the better of the uncleanly habits of almost every patient.

Having covered the routine duties, Conolly has much more to say about the attendants' approach to their patients; they must always be ready to explain what is misunderstood; to remedy grievances; to comply with reasonable requests; to make known the patients' wishes to the physician; to watch for signs of recovery and give the most delicate attention at this time of great sensitiveness.

These duties, says Conolly, can only be expected from attendants of humanity and intelligence, who are treated kindly, governed justly, and properly supported by their officers. So he goes on to consider how best the staff can be given encouragement and confidence, and how good relations can best be maintained. There must not, he says, be regulations as for a prison, which can but produce in an attendant the feelings of a turnkey; cruelty must be punished by instant dismissal, but other offences must be treated with fairness and leniency; and this will be the principle observed where the physician is invested with disciplinary authority.

A word may be said here about the position of the Matron in what may be called the post-Ellis period, when the married couple arrangement was generally abandoned. Conolly's matron at Hanwell, Miss Powell, was a loyal supporter of his reforms; her successor had, significantly enough, held a similar post with W. A. F. Browne at Montrose. But in general both Conolly and subsequent medical authors in our Journal and elsewhere expressed them-

selves very critically about matrons, who were too often entrusted with, or assumed, powers for which they were in no way fitted by training or experience, and were said to use these powers to retard progress. Over the next forty years the general opinion was that a "chief nurse" promoted from the ranks was preferable to an amateur "lady matron". The rehabilitation of the matron came much later when as a professional hospital-trained nurse she was seen as an essential leader in the movement for what was called the "hospitalization of the asylums".

However admirable Conolly's methods of government may have been, it is doubtful whether in the five or six years of his régime he can have succeeded in fully achieving the reforms he had at heart. The Commissioners in 1844 found that a large proportion of the female attendants had been in the asylum for only a short time; and Conolly himself, while giving praise where he could, complained of much obstruction and resistance. There is no doubt also that his successors, both at Hanwell and in the many asylums which multiplied between 1845 and 1860, found it most difficult to recruit staff with the required mental and moral qualities. The expansion of the asylum service was too rapid, and the increased demand too great. In fifteen years the number of pauper patients in asylums and licensed houses in England and Wales rose from something under 6,500 to 17,500. Moreover the condition of England had moved on from the bleak, hungry forties to the prosperity that followed the Great Exhibition, and this same prosperity that made the new asylums possible must have had the well-known effect of diverting potential recruits to other occupations. When in 1854 the Commissioners called for reports from all the hospitals under their jurisdiction, only the smaller ones were able to describe a satisfactory state of affairs. At the Retreat "the proportion of attendants had been nearly doubled and the general standard of education and competence had been raised" so that the staff were now "better able to understand the initial indications of important states and changes". At such an entirely different establishment as Hoxton House the proprietors claimed to have obtained "persons of pleasing appearance and manner, cheerful disposition, good nature and good sense", to have treated them with kindness and consideration, and to have been rewarded by their "willing and persevering exertions".

Year after year the Commissioners continue to press the importance of improving the nurses' and attendants' conditions of work, and their remuneration and status. From 1857 onwards they record and commend the system of separate night-nursing, although it is clear that this existed in only a rudimentary form.

Arlidge's book *On the State of Lunacy*, published in 1859, naturally includes a thorough discussion of the attendant problem. He points out that among many other handicaps "they have no preliminary instruction or training, but have to learn their duties in the exercise of them". "Many," he continues, "are their failures, yet on the whole, considering their antecedents and the nature of the duties imposed on them, their success is remarkable." Arlidge makes the constructive suggestion that the system then adopted in the large London hospitals should be extended to the asylums, whereby the office of "sister" to nurse the patients should be separated from that of "under-nurse" to whom the cleanliness of the ward is committed. He does not follow up his criticism of the lack of training and instruction.

Yet training of some kind there must have been, even if this was sporadic and unorganized. In their great report of 1858 on the Insane in Workhouses,

the Commissioners declare that "under experienced and well-trained nurses the bad habits of patients have been removed; their irritability and tendency to violence has been suppressed or modified; and the intellect has been so far guided and improved as to render the patients capable of some useful occupation, and of enjoying the comforts of life". They appear confident that the introduction of even one or two such nurses into a workhouse would be of immense benefit to the patients who at the time had only their fellow-inmates to care for them.

Conolly must without doubt have attempted to train his staff by personal precept and practice. In Hack Tuke's *Dictionary of Psychological Medicine* there is mentioned a work of his entitled "Teachings for Attendants", but I have not been able to trace this. W. H. O. Sankey, a later successor of Conolly at Hanwell, mentions and quotes from a booklet of instructions which he had had prepared to supplement the statutory "Manual of Duties". Conolly's high ideal of "regulating every word, look and action of all who come in contact with the insane" is fully supported. Sankey relies on the tranquillizing and curative action of the sound mind on the unsound; with excited patients "any word or act calculated to leave an uncomfortable impression on the patient's mind" is forbidden. He points out how much may be done for the so-called "lost" patients by the nurse's attention and perseverance: "Many who from disease have forgotten all habits of order and cleanliness have been re-instructed". When provoked "the nurse should never allow the expression of her face to show anger, and to allow this the nurse should avoid feelings of anger altogether, which she will do by repeatedly calling to mind the unfortunate affliction of the patient".

It is therefore hardly correct to identify the beginnings of nurse training with the giving of a formal course of lectures; nevertheless it should be recorded that the first known set of lectures to mental nurses are those given by Sir Alexander Morison at the Surrey Asylum (now Springfield Hospital), in 1843-44. Morison, who had given the first lectures on insanity to students at Edinburgh twenty years earlier, was Visiting Physician to Springfield. In his Annual Reports he explains that he has especially pointed out to the attendants the means by which they can acquire the patients' regard and confidence and can induce them to occupy themselves in useful employments and rational amusements. Morison was one of the founders of the "Society for Improving the Condition of the Insane", and it is not surprising that several of his hospital staff obtained "premiums" offered by the Society as rewards for "meritorious conduct". But there is no evidence that these lectures ever established themselves as a permanent feature.

An equally ephemeral but much more significant venture was that of W. A. F. Browne at the Crichton Royal in 1854. As far back as 1837 Browne in his book on *What Asylums were, are and ought to be*—already referred to in two recent Presidential Addresses—had called for some system of instruction for attendants and praised the apprenticeship scheme in force in some French asylums. In 1854 he gave a course of thirty lectures, primarily to the officers and attendants, but also to some of the patients who belonged to the medical profession. His description of the contents of the course merits careful attention. "In these lectures," he says, "mental disease was viewed in various aspects; the relation of the insane to the community, to their friends and to their custodians were described; treatment, so far as it depends upon external impressions and the influence of sound mind, was discussed; and it was attempted to impart attraction by illustration and narrative and by

examples drawn from the actual inmates." This first experiment in a mental nursing curriculum was therefore chiefly concerned with human relations, and the methods of teaching included visual aids and clinical demonstrations. One may surmise that Browne's influence as a Commissioner may have led to the developments which were brought to the notice of the Association by Clouston in 1876. But there is no actual evidence of this; and no progress towards a system of training was made during the intervening years. The textbooks of the period—Bucknill and Tuke for example, or Blandford—contain fairly long discussions of the work of attendants and nurses, the qualities required of them, and the perplexing problem of recruitment. Letters appeared in our Journal urging better pay and promotion prospects, together with an adequate pensions scheme. Maudsley, in 1871, proposed that our Association should set up a registry of "good" attendants and felt that such a step would raise the standard of attendants as a class; but he did not attempt to link this with any form of training. Perhaps no attempt of this kind could have succeeded before compulsory education, introduced in 1875, had produced its effects.*

In 1870 also, a letter, signed "Asylum Chaplain" appeared in the *Journal of Mental Science* advocating a systematic training of attendants. The suggestion was that the Medico-Psychological Association should authorize some qualified persons to write a simple catechism embodying what was required of an efficient attendant. Novices were to be tested, and until they had passed through this ordeal they should be regarded as simply probationers. The author was probably the Rev. Henry Hawkins of Colney Hatch who later was more successful in founding the Mental After-Care Association. There was no immediate response to his suggestion.

The next landmark is the address given by Thomas Clouston, who had recently been appointed Physician-Superintendent of the Royal Edinburgh Asylum, to the Annual Meeting of the Association in 1876. This was entitled "On the Question of Getting, Training and Retaining the Services of Good Asylum Attendants". Clouston dwelt at length on the constantly shifting population of inexperienced attendants, on the need for natural aptitude and the unpredictability of success in the work. Then he outlined his methods of personal and individual training. He advocated the use of a special "hospital ward" in which all new attendants would be trained. There would be in charge of it a person of intelligence and experience who would instruct the novices in the routine ward work. One of the medical officers would spend a special time each day in showing them the peculiarities and habits of different kinds of cases, drafting in for this purpose a typical suicidal melancholic, an acutely excited case, a general paralytic and so on; the novice would be given charge of each of these in succession and be made to walk with him, work with him, and eat with him, the doctor and the chief attendant meanwhile examining the novice and teaching him every day as to things to be known and done. Moreover the novice should go with his patients to see the relatives at their visits, and find out why and how the disease arose. Lectures, once a week in the winter evenings, were to supplement this practical teaching. Clouston

* It is remarkable that, as far as is known, Florence Nightingale took no interest in the training of mental nurses, especially as in her published works and her letters she repeatedly stressed the psychological aspects of nursing in general. She took a prominent part in breaking up the all-purpose workhouse infirmaries in London (1865-67) and she also promoted the use of trained nurses in the reformed infirmaries, but it does not seem to have occurred to her that the mentally ill and defective patients removed under the 1867 Act to the new institutions provided by the Metropolitan Asylums Board were equally in need of skilled nursing care.

added a number of suggestions for improving the conditions under which attendants worked and for raising their morale.

The discussion on this paper shows by its omissions that the time was not yet ripe, for although these latter recommendations were warmly supported, hardly a word was said on training, the main subject of the address. A small Committee was formed to report on the advisability of forming an association" or "registry" of attendants in connection with the Medico-Psychological Association, but nothing appears to have come of this.

Another six years' silence follow this debate, broken only by grumbles (in Asylum and Commissioners' annual reports) about "frequent changes in the staff", or the difficulty of keeping out "undesirable attendants" from other asylums. Then at a Quarterly Meeting of the Association at Edinburgh in 1883 Campbell Clark, of the District Asylum, Bothwell, read the paper which led directly to the developments of the next few years.

Clark "took up the subject where Clouston left off". He had been encouraged to start a course of teaching by the zeal and thirst for information he had found among some of his staff. His first course, in 1882, he felt was only a partial success—"many of the lectures had been aimed too high". His second course was simpler and more practical, and he felt that he "had hit the right nail on the head". Concurrently he gave ward teaching, and at the end of the course prizes were offered for essays on a subject such as "hallucinations", on which Clouston was asked to adjudicate. And further, he tells us that "informal club meetings were held among the attendants themselves, at which the lectures and their application to particular patients were discussed, and thus a kind of mental improvement society was established".

Having described his methods, Clark went on to ask the Association to "promulgate what has been done and to encourage renewed effort in this direction". He proposed that there should be a tentative arrangement by which superintendents willing to participate would enter into a combination, would teach and issue certificates, and that these certificates should be registered by the Association.

In the discussion which followed, Clouston said that he had previously circularized the Scottish Royal Asylums on similar lines, but with no result; Campbell Clark was the first to have a practical scheme. W. Ireland and A. R. Urquhart approved, and Urquhart proposed that a manual should be prepared, to take the place of the books of rules which he had always felt to be unsatisfactory.

The meeting resolved "that a committee of the medical officers of the asylums of Scotland be appointed for the purpose of considering the question of (1) the special training and instruction of asylum attendants and the best modes of doing so and (2) the preparation of a manual of instructions for nursing and attendance on the insane". A Committee was then nominated consisting of "all the gentlemen present", numbering about a dozen.

By 1885 the Handbook, bound as it has always been since in red, had been printed, and it was "laid on the table" at a Quarterly Meeting held at Bethlem in May 1885. There is much information and wisdom packed into its 64 pages, and it could still serve as a "first steps" book to be put into the hands of student nurses during their introductory course. Our Journal's review was on the whole favourable, but expressed some misgivings as to whether too much physiology was being taught.

We are apt nowadays to think of the "Handbook" and the "Certificate" as belonging together, but in fact over five years elapsed after the publication

of the book before the next step was taken. During this time references to teaching and lectures become more common in our Journal. In 1886 Shuttleworth at the Royal Albert Institution reports that he is training his staff for the St. John Ambulance certificate, and this practice became quite common in mental hospitals during the next thirty years. By 1888 classes are being held at Haywards Heath, Dundee, York and Morpeth, and Manning from Australia reports progress and even sends his nurses for a period of instruction in a general hospital. In 1889 Campbell Clark sums up his experience of the last seven years; he is now holding a full course of lectures and examinations; the nurses each have patients allotted to them, and they must make their observations and embody them in written reports. "By such means," he concludes, "the faculty of observation is educated, the patients are individually focused and are better cared for and better understood."

The stage is now set for the final debate at the 1889 Annual Meeting of the Association, when on the motion of E. B. Whitcombe, of the City Asylum (now All Saints Hospital), Birmingham, a committee was appointed "to consider a report on the systematic training of nurses and attendants, the granting of certificates of proficiency and the keeping of a register". The Committee reported in the following year. They pointed out that any examination could only test the element of "proficiency" and not the other two essential attributes of the nurse, namely morality and suitability—the latter including the "in describable element of compatibility with insane people". As to these latter attributes, the Association should call for evidence of them at the time of the examination. The Committee also held that an attendant who was found not to have the capacity for undergoing training was not necessarily unfit to be employed, though he might be unfit for promotion. As to the training course itself, it was to extend over two years and was to include "exercises" under head and ward attendants, and clinical instruction in the wards by the medical staff, as well as lectures, of which only twelve were compulsory. Papers were to be set centrally, but their marking and the conduct of the practical examination were left to the medical superintendent and an assessor from another hospital.

The scheme was adopted at the Annual Meeting in 1890, and the first examinations were held in the following year. As might be expected the first successful candidates were from Scottish Asylums, and All Saints Hospital was the first to pass an English candidate.

The Committee's proposals appeared just in time to be included in Hack Tuke's *Dictionary of Psychological Medicine*, then in course of preparation, and are recorded under the rather curious heading of "Insane, Attendants on". But Hack Tuke also invited Edward Cowles of the McLean Asylum in America to contribute a separate article on "Nursing, or Training Schools for Nurses". Cowles had founded his training school in 1882, the same year as Campbell Clark's first lectures. His outlook was very different from that current in Britain, and was in fact derived from that of the leading general hospitals in both countries. The nurse in training was regarded as a pupil, and so her wages were nominal, yet it was these pupils who were expected to do the greater part of the work. The incentive was the training itself, leading to lucrative higher positions in the hospital, and still more in private nursing. The products of the asylum schools were "pressed upon the public". In the school itself, much more reliance was placed on the tutorship of the trained nurses who held the key positions—"an adequate teaching staff of trained women". Cowles adds that "the duty of the asylums to promote the public

good demands their best efforts to diffuse a general knowledge of the mental aspects of illness, of mental hygiene and the proper early care of the insane".

It does not appear that Cowles' principles had any great influence in Britain, and our asylums continued to proceed on the lines of providing what was really an in-service training rather than a pupillage leading to placings outside the hospital. Nevertheless the certificate did come to be used by a good many successful candidates as a passport to private nursing so long as social conditions created a demand, and the reformed poor-law infirmaries also absorbed some of the products of our examinations.

In 1899 Dr. Beveridge Spence, of Burntwood, who was the first Registrar of the Association, reviewed what had been achieved in his Presidential Address. Over 100 asylums were participating and between five and six hundred certificates were granted every year. In the light of experience, modifications had been introduced; there was now independent marking of the written answers, and the external examiner took a larger part in the oral examinations. Certain certificated nurses from general hospitals were allowed to qualify in one year. He now had a real feeling of confidence and security and was assured that patients were receiving all the care and skill that a trained nurse could give.

In 1893 the second edition of the "Handbook", now taken over officially by the Association, appeared; by 1908 the book was in its fifth edition and had grown to over 370 pages. And here we have the beginnings of the deviation or heresy which led to the mental nursing qualification being so largely divorced from the nurse's real work. The book, and also the published syllabus, were now arranged on speciously logical lines, beginning with the supposed basic sciences of anatomy and physiology and only reaching any consideration of the care of mental patients after almost every other subject had been exhausted. Already in 1898 some of our members had pointed out that there was an excessive elaboration of theoretical studies, while practical work in the wards was inadequately dealt with; nevertheless this tendency grew unchecked. Under revised regulations which came into force in 1908 the curriculum was extended to three years, and a First Examination was instituted, to be taken at the end of the first year; as we all know, this dealt entirely with anatomy, physiology and first aid. Later, for a time, a second intermediate examination was held, concerned with bodily diseases, and the little psychiatry and actual mental nursing included were relegated to the third year.

The reasons for this unsound arrangement derived of course from imitation of the curriculum which had come into vogue in the general hospitals, and which in turn was framed on a mistaken analogy with the medical student's course. The great teaching hospitals and their nurse-training schools had by now acquired an unparalleled prestige, and other bodies willingly conformed. The wider influence of the same trend of opinion was seen in the movement for the "hospitalization of the asylums" to which we must now turn.

Very diffidently I must refer to the practice and opinions of Scottish psychiatrists, and having already stressed the contributions of Browne, Clouston and Clark I must now bring forward the great names of David Yellowlees and George Robertson. Dr. MacNiven, I am sure, could have dealt far more competently with this part of the subject from his personal knowledge; I can only base my surmises and conclusions on their writings, mainly in the pages of our own Journal.

It will be remembered that Clouston's methods of nurse training were, at any rate at first, essentially practical and as we now say "patient-centred".

He believed in the separate and distinctive "hospital ward", and it was through his influence and that of his English pupil, Hayes Newington, that the detached hospital unit, either for the sick or for short-term admissions, became a common feature of asylums.

But—I am following now George Robertson's account of events—this enthusiasm for "hospital" features went further, and the approximation of the methods of the asylum to those of the general hospital was regarded as an aim in itself. Every feature peculiar to the asylum was regarded as suspect and some hospital method was substituted. I need hardly remind you that half a century later a World Health Organization Report was proclaiming a complete reversal of this doctrine.

General hospital-trained nurses were brought in as matrons of asylums, or, in order to give them at least some experience of the care of mental patients, they were first appointed as assistant matrons with a view to promotion at an early date. In a number of Scottish asylums the matron was given control of both the male and female sides of the hospital. Undoubtedly these measures must have contributed greatly to raising the standard of bedside nursing; yet they could not fail also to depress the status of the mental nurse and to confirm and strengthen the bias away from the principles of moral treatment. David Yellowlees alone appears to have held out against this trend. In a letter to our Journal in 1901 he uttered his protest. "An asylum-trained nurse," he wrote, "must learn to do much more—in addition to the hospital nurse's duties she has to deal with all the patient's vagaries of talk and conduct, to calm the restless, to guide the perverse, to rouse the apathetic, to comfort the desponding . . . she must be constantly alert and observant, act on her own judgment and responsibility . . . surely no one can question which of these has the highest duty?" As I understand it, the matrons and assistant matrons recruited in small numbers at Edinburgh and elsewhere were women of superior intelligence and education, and it seems to have been forgotten that it was this rather than the mere possession of a certificate of general training that was the reason for their success.

Another aspect of the "hospitalization" movement was the spread of the nursing of male patients by women nurses. Historically, the use of women nurses in this way was in its origins a method of moral treatment; for, like a number of other original and unconventional measures, it was first practised in the 1840s by the Founder of our Association, Samuel Hitch of Gloucester, and the married couple whom he employed were in charge of the refractory, not the infirmary ward. Maudsley in 1868 pointed out that a deluded and hostile patient would yield to a woman's persuasion more readily and with less feeling of humiliation, and in the same year Crichton-Browne at Wakefield successfully introduced a woman nurse as an auxiliary into a ward of seventy epileptic and suicidal patients. After various other experiments, George Robertson, by his writings and practice at Perth, Stirling and Edinburgh, did much to secure a general acceptance of the principle; combining it as he did with the introduction of the general hospital-trained nurse he was able to show impressive results in the improved habits and behaviour of turbulent patients as well of course as better nursing in the sick wards. The shortage of male staff during the First World War led to a still wider spread of female nursing, and by the year 1925 there were few hospitals where at least one or two male infirmary wards were not staffed by women. The policy was later violently attacked by the Asylum Workers' Union as a cunning conspiracy to secure cheap labour; it is evident that this was not the motive that inspired Hitch or

Crichton-Browne or George Robertson, or that impelled the Boards of Control to give their support. This must be recorded as a historical fact; but the controversy has ceased to be more than academic since the severe shortage of women nurses, together with better facilities for the training of male staff, has led to female nursing surviving on a much reduced scale.

At the Retreat, from about 1900 onwards, Bedford Pierce set an example of mental nurse training on wise and progressive lines. The hospital's duty to provide training was affirmed and in return probationers entered into a four-year contract. The status of the charge nurses, here called ward sisters, was raised, and ward instruction was given by them and by the matron. Pierce stressed the need for the training of the nurse's personal habits and powers, her social gifts and accomplishments, as well as proficiency in certain physical methods of treatment—for such methods existed and were much valued even in 1903. He looked forward to better co-operation between the hospitals for the sick and for the insane, but this should be on terms of equality—"neither branch of the nursing profession must assume proficiency without justification". The collected "Addresses to Mental Nurses" delivered annually at the Retreat by distinguished guest speakers over a number of years and edited by Bedford Pierce in 1921 record the principles and ideals which they sought to instil. In the same year he was appointed one of the first psychiatric members of the newly created General Nursing Council for England and Wales and Chairman of its Mental Nursing Committee. Here there comes into the picture the movement for the State Registration of Nurses, and we must retrace our steps and see how mental nurses came to be involved and how their place was eventually secured.

The movement was originated by Mrs. Bedford Fenwick in 1889, and its first instrument was the Royal British Nurses' Association; but for many years the issue was bedevilled by dissensions and splits, and the whole principle of registration was in any case violently opposed, chiefly by certain of the London teaching hospitals. The Royal British Nurses Association was for long governed by a mixed Council of doctors and nurses, and this included several members of our own Association, notably Sir James Crichton-Browne, Dr. Outterson Wood and Professor Ernest White. In 1897 Wood brought the position to the notice of the Association. He had proposed that nurses holding the M.P.A.'s certificate should be recognized as eligible to become members of the R.B.N.A. on certain conditions and as a distinct class. In spite of much opposition and a great display of prejudice against the asylum-trained nurse in the columns of one of the nursing journals, the proposal was accepted by the Council of the R.B.N.A. and an alliance was suggested between the two Associations, the M.P.A. conducting the examinations and the R.B.N.A. registering the successful candidates on its voluntary register after enquiring into their character and antecedents. Nothing seems to have come of these negotiations.

In 1904 rival bills for the State Registration of Nurses came before Parliament and were both rejected. Instead, a Select Committee was appointed to consider the question and make recommendations. One of the Bills provided for a single psychiatric representative on a General Nursing Council of 31, who might be either a doctor or a nurse, and who would be appointed by the Asylum Workers Association—a body I shall refer to a little later. Outterson Wood devoted a large part of his Presidential Address of 1905 to the subject, and to strengthen the mental nurses' case the training period was lengthened to three years; it was also at about this time that the term "male nurse" came into general use in place of "attendant".

At the Select Committee, Ernest White gave evidence of the nature and scope of the Association's examinations, and the Committee (which included among its members Sir John Batty Tuke, the former medical superintendent of the Fife and Kinross asylum and pioneer of the open-door system) recommended that State Registration should be instituted and that the Association's examinations should be recognized as qualifying for Registration.

However, as we all know, State Registration had to wait another fourteen years before it became law. Bill after bill was promoted and failed to secure a passage, and some of these bills altogether ignored the claims of the mental nurse. Throughout these years our Association continued to press these claims, by organized petitions or by assiduous lobbying. In 1916, on the formation of the College of Nursing, the Association urged upon that body the need for including on its Council "some persons conversant with asylum training", but the College declined to co-operate in this way.

When at last the Nurses' Registration Act was passed in 1919, provision was made for the inclusion of "nurses trained in the nursing and care of persons suffering from mental diseases" in a Supplementary Part of the Register. For the first English General Nursing Council, the Minister of Health was to make five appointments representative among other things of "special nursing services and medical practice", and sixteen appointments of nurses after consultation with "associations or organized bodies of nurses".

An "organized body" that could and did claim the right to be consulted in respect of mental nurses had in fact existed for the previous nine years, although its membership was not confined to the nursing members of asylum—shortly to be renamed mental hospital—staffs. Again, and for the last time, I must go back to the eighteen-nineties and nineteen hundreds and try to record, within the fast dwindling limits of this Address, some of the events arising from problems other than the educational ones with which I have so far dealt.

Charles Mercier, in his book on the *Organization and Management of Asylums*, published in 1894, discusses these problems at great length. After mentioning approvingly the recently-created M.P.A. Certificate he turns to the nurses' conditions of service and draws attention to the continued failure of asylums to retain a large proportion of their staff. He points out that this supposed restlessness is a natural consequence of poor conditions, and lists bad food, broken sleep from the presence close by of noisy patients, and the irksomeness of the many regulations. He gives many examples of ways in which these could be made more elastic, more consideration could be shown in such matters as the weekly or annual leave, and social life could be encouraged. It is necessary to ensure that on entering the service the attendant or nurse should see a career before him, and so a hierarchical arrangement of posts should be provided; evidently such a system was an innovation at the time. Discipline must not appear to be capricious, and the reasons must seem manifestly adequate to the general body of staff. Mercier's caustic pen did not fail to bring home to medical superintendents and matrons alike their responsibility for avoidable discontents. At this time the working day for nurses commonly began at 6 a.m. and ended at 8 p.m. with an extension to 10 p.m. once a week, making an average of 89 hours a week, and although W. F. Menzies and other writers advocated a reduction to 72 hours, mainly by introducing breaks during the day, little improvement was effected for many years. Robert Armstrong-Jones, in his *Text Book of Mental and Sick Nursing* of 1909, still records these same hours, and moreover gives a depressingly monotonous account of the nurse's routine duties.

In 1895, some members of our Association founded a voluntary organization—named “The Asylum Workers Association”—intended to cater for the needs of nurses and attendants. It met for a time with a good deal of success, and in 1905 it numbered between 3,000 and 4,000 members. But its constitution and government were entirely paternal; the secretary was for long Dr. Shuttleworth, of the Royal Albert Institution, and the annual Meetings, regularly reported in our Journal, consisted largely of uplifting speeches by distinguished Honorary Vice-Presidents; no mental nurse seems ever to have spoken and it is doubtful if any attended. Nevertheless the Asylum Workers Association was certainly moved by a genuine desire to “improve the professional status of the mental nurse”. It took part in urging the mental nurse’s claims to a place in any State Registration scheme, and more especially it actively promoted the plan for a national system of pensions for nursing and other staff, which was embodied in the Asylums Officers’ Superannuation Act of 1909.

Somewhat unexpectedly, it was the passage of this Act, admittedly “a boon to many and a generally acceptable measure”, which brought to a head the grievances felt by many of the staffs, and led in 1910 to the formation of the National Asylum Workers’ Union. As the original manifesto of the Union explained, the Act had many imperfections. In particular, exception was taken to the compulsory deductions from wages already too small; but of course there were deeper grievances. The manifesto contains some notable passages—“Our minds are not improved, because the conditions of our labour are such that they shut us off from the wider range of Humanity and of books . . . apart from any true education we cannot attain to any real moral greatness.”

The attitude of most members of our Association to this new development was at first entirely unfavourable. No doubt much of this opposition was merely part of the political creed prevalent at the time; but I believe that there were more cogent reasons also, and perhaps the most important was the apparent absence on the Union’s part of any kind of professional outlook. During its first years, in fact, the pages of the Union’s magazine contain no references to the training or professional status of the mental nurse, although these were the very years when attention in the nursing world was most constantly focused on these matters. It was not till 1919, when the Nurses’ Registration Bill was being passed, that the Union first included in its programme a demand for better training facilities in all asylums, and in the same year it successfully claimed the right to be consulted by the Minister and to put forward candidates for seats on the General Nursing Councils.*

Thus, when the General Nursing Council for England and Wales first met in May, 1920, it had among its members one mental hospital physician, Bedford Pierce, appointed by the Minister on the recommendation of the Medico-Psychological Association, and one mental nurse, Mr. Christian of Banstead, appointed on the nomination of the Union. A Standing Committee which included these two members was appointed to consider the position of holders of the M.P.A. certificate, and it was resolved to accept this, during the period of grace, as evidence of training; the recently-established certificate for nursing in mental deficiency was also accepted. In 1922 it was agreed that holders of the Association’s certificate should be eligible for a shortened period of training in general hospitals. For a time it was thought that the Council might take over the final examination in mental nursing only, leaving the M.P.A. to continue

* In later years, of course, the Union (now merged in the Confederation of Health Service Employees), became much more aware of its educational responsibilities.

the intermediate examinations, but in 1923 the Council definitely decided to insist on a common preliminary examination for all nurses. In the same year a joint conference was held between the Council, the Association and the Board of Control. It was there stated on behalf of the Council that it was realized that mental nurses would for a considerable time to come prefer not to register, and therefore the examination and certificate of the Association would be necessary as before. The Council welcomed the assistance of the M.P.A. and invited the Association to nominate examiners and to appoint an advisory committee to the Council.

However, during subsequent years this committee ceased to be consulted, and if the ever-militant Mrs. Bedford Fenwick, writing in her *British Journal of Nursing*, is to be believed, the Council's own Mental Nurses' Committee itself rarely met. So an estrangement between Council and Association began, which I suppose it would be right to say lasted for some twenty years.

These events are so much within the memory of many of us that it is not necessary to continue the story. Looking back, it seems to me that much of what we did in a fruitless effort to defeat the General Nursing Council's policy was misguided and a little childish. On the other hand I think we did well to maintain our own examination in being until after the last war, for in this way we eventually secured entry to the Register for a large number of nurses who would otherwise have remained unrecognized. And some of us who were last ditchers in this matter clung to our own system, not because it was the best, but because it seemed to offer a better chance of reform—of overcoming the heresy I mentioned earlier, and getting back to the principle that mental nurses should be taught mental nursing. It seemed to us that the flexibility and informality of our Association's procedure might prove more favourable to such a change than what appeared to be the rigid structure and policies of the Council. In this we turned out to be quite mistaken, for during my seven years' service on the Council it has been a pleasure to feel the presence of a spirit of adaptability and adventure. The suggestion that the time was ripe for reform was readily accepted in 1957 by both Association and Council and the reform is in process of being carried through. Whether it will succeed in its aim of restoring to the mental nurse the confidence which comes from the mastery of one's trade is a matter for the future, and can have no place in this Address. It may be significant, however, that at the very time when the mental nurse is being provided with a distinctive and appropriate training she—and he—is at last about to be accepted for membership of the Royal College of Nursing.

I am very conscious of the imperfections of this sketch of the History of Mental Nursing, which I can only hope will be forgiven. But at least my choice of the subject gives me an opportunity to pay a tribute to our sister profession—a profession which has had to contend with many handicaps and many frustrations, but whose splendours far outshine its shortcomings. Sometimes we are able to think of its members as our sweethearts or wives; all too rarely they are our sons or daughters; but always they are our friends and allies, and to quote once more the words of John Conolly "they are the instruments through which every great and good purpose is brought into hourly practice".

A STUDY OF ALCOHOLISM AS AN OCCUPATIONAL HAZARD OF MERCHANT SEAMEN

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THE present paper is based on the study of the drinking habits of British seamen interviewed during a recent journey.

BACKGROUND

The age-old phrase "drunk as a sailor" illustrates the fact that popularly the association between seafaring and heavy drinking has long been accepted as common. However, apart from a brief reference by Rose (1959) hardly anything seems to have been written on the subject in the British medical literature and relatively little elsewhere. Among American merchant seamen passing through Merchant Marine Rest Centres, Powdermaker (1945) and Heath (1945) found that about one-fifth were alcoholics. Among Swedish alcoholics Amark (1951) found seamen to be more common (to a statistically significant degree) than in the general population. Ødegard (1951) (Norway), writing of drinking associated with special occupations, refers to sailors and travelling salesmen as examples of groups of people whose occupation keeps them away from home for long periods.

METHOD OF INVESTIGATION

We devised a questionnaire which was used by one of us (H.K.R.) who at the time of the investigation was serving on board ship as a ship's surgeon. The seamen were interviewed whilst the ship was at sea. Sixty men out of a total crew of 72 were interviewed on one ship. This was a random sample, the seamen being interviewed as one happened to come across them. There were only seven refusals amongst those asked. The other 40 were found on two other ships lying in harbour in Trinidad. Once again the first men found on board ship were interviewed, no attempt being made to find any particular type of seaman. These seamen change ship frequently and can be considered to be fairly representative of the British merchant seaman, as judged from a previous investigation (Rose, 1959). The large majority of the seamen interviewed originated from Liverpool, but there is no reason to believe that seamen from other cities are different in their habits.

The form was filled in by the doctor concerned during the interview, the seaman being told that the information given was not the concern of the Shipping Company and was for private use only. To encourage truthful replies no names were taken, but initials were used to prevent duplication. A most co-operative attitude was found, although personal observation suggested a tendency to "play down" the drink taken.

Results: The results are shown in the enclosed tables.

TABLE I

100 Naval Personnel comprising 32 Officers and 68 Crew

1. Age

15-25 years	..	..	..	43
26-35	"	..	..	35
36-45	"	..	..	11
Over 45	"	..	..	11

2. Marital Status

Married personnel	..	..	48
Unmarried personnel	..	..	52

3. Nature of Predominant Drink

Beer drinkers	80	Comprising	21	Officers	and	59	Crew
Cider	1	"	0	"	"	1	"
Wine	4	"	0	"	"	4	"
Spirit	14	"	10	"	"	4	"
Teetotal	1	"	1	"	"	0	"

TABLE II

Amount of Drink in Relation to Time at Sea

1. "V. HEAVY"

(26) Total

Less than 5 years at sea	..	..	3
5-10 years at sea	..	..	12
11 years and more	..	..	11

"HEAVY"

(25) Total

Less than 5 years at sea	..	..	3
5-10 years at sea	..	..	6
11 years and more	..	..	16

"MODERATE"

(27) Total

Less than 5 years at sea	..	..	8
5-10 years at sea	..	..	10
11 years and more	..	..	9

"LIGHT"

(21) Total

Less than 5 years at sea	..	..	9
5-10 years at sea	..	..	6
11 years and more	..	..	6

"TEETOTALLER"

(1) Total

Less than 5 years at sea	..	..	1
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2. (51) Total

(49) Total

"V. HEAVY" AND "HEAVY"

compared with

"MODERATE", "LIGHT"
AND TEETOTAL

0-10 years at sea	..	24
11 years and more	..	27

33
16

DISCUSSION

Age (Table I)

Less than 25 per cent of the seamen were beyond their mid-thirties. Most, therefore, had not yet reached the age at which alcoholism in this country is generally diagnosed. Thus the age-groups between 40 and 45 years were the numerically strongest ones among alcoholics admitted to the alcoholic unit at Warlingham Park Hospital (Glatt, 1955a) and to a London Observation Ward (Glatt, 1955b), and among those observed in a London Reception Centre (Glatt-Whiteley, 1956). The development of alcoholism extends, however, over a great many years. Premonitory and early signs of alcoholism had appeared among most alcoholic patients of Warlingham Park Hospital when still in their early thirties (Glatt, 1960). Thus if there were potential alcoholics among these seamen, certain signs could reasonably be expected to be present, even in these younger age-groups.

Marital Status (Table I)

Approximately half were single, a somewhat smaller percentage than among Powdermaker's American seamen. However, almost half of these seamen were still below their mid-twenties.

Nature of drink (Table I)

Beer was favoured by the great majority. Spirit drinkers were relatively more common among officers than among the crew. This may be partly due to the fact that on board ship spirits were easily available to the officers only, but it also corresponds to the findings of the Hulton Leadership Survey (1948) that spirit drinking was relatively more popular with the higher than with the lower income groups.

The seamen's sample contained only one teetotaller. Two alcoholic seamen who, after treatment at Warlingham Park Hospital, returned to the sea likewise found themselves to be the only teetotallers on their ships. The proportion of teetotallers among the adult male population of Britain amounts to one in five (Zweig, 1948).

Amount of drink consumed (Table II)

We arbitrarily classified

- as "very heavy" drinkers those who consumed 11 or more pints of beer daily or 6 or more doubles of spirits daily;
- as "heavy" drinkers those who consumed 6-10 pints of beer daily or 3-5 doubles of spirits daily;
- as "moderate" drinkers those who consumed 3-5 pints of beer daily (no spirit drinkers);
- as "light" drinkers those who consumed 1-2 pints daily (no spirit drinkers).

Nearly all beer drinkers also took occasionally or regularly spirits. They were all daily drinkers except for short periods when on the wagon. The amount of drink taken at sea and on shore varied from seaman to seaman. Most varied little from sea to shore, though some drank more heavily at sea and others on shore. Those holding responsible jobs on the ship, e.g., quartermaster or on the bridge, drank moderately lightly or were "on the wagon" whilst at sea, but sometimes had "sessions" when ashore.

The availability of supply of alcohol varies on ships belonging to different

companies and seamen who occasionally sail on a "dry" ship have an enforced period "on the wagon".

Seamen in special occupations at sea, e.g., barmen or lounge stewards, have the added temptation of alcohol being constantly and readily available throughout the day.

Corresponding to Powdermaker's findings among American seamen, heavy drinking was more common (to a statistically significant degree) among veteran seamen than among more recent recruits. Thus among those at sea 10 years and less there were three moderate or light drinkers for every 2 heavy and very heavy ones, but hardly more than 1 "moderate" among the veterans who had been at sea 10 years or longer.

Frequency of drinking

In contrast to the daily drinking of the 99 seamen are findings reported by Zweig that about two-thirds of the British beer drinkers and 90 per cent. of the spirit drinkers only take alcohol once a week. No more than 15 per cent. of the British beer drinkers (and less than 4 per cent. among the spirit drinkers) were "regulars", i.e., daily drinkers, consuming between 4 and 10 pints per day. Among the present sample of merchant seamen half consumed more than five pints of beer or three double whiskies per day.

The average merchant seaman thus seems to consume alcohol more regularly and in greater amounts than non-seamen. It is of course well known that in regard to the risk of the prevalence of alcoholism in a certain group of people, other factors are involved besides the amount of alcohol consumed; e.g., among Jews there are few abstainers but at the same time very few alcoholics (Snyder, 1958), whereas other religious groups with a considerable proportion of abstainers may yet show a great percentage of alcoholics. Yet by and large—other factors being equal—the risk of alcoholism can be reasonably expected to be greater with the regular heavy consumption of alcohol than otherwise. The etiology of alcohol "addiction" is not yet clear, but, on the other hand, the daily consumption of large amounts of alcohol over years—becoming more severe on the whole the longer the seaman remains at sea (perhaps partly due to the increase in tolerance), may perhaps be compared to conditions as discussed by Jellinek (1958) in the case of the French drinkers: "There can be little doubt that the consumption of amounts of three litres of wine upwards per day, over 15 or 20 years, cannot be handled by the organism without much impairment of metabolic and nervous functions which can be classed as aspects of 'chronic' alcoholism."

Other factors being equal, one might expect that spirit drinking might lead to alcoholism more rapidly and more frequently than beer drinking, yet there is, of course, no doubt that pure wine-drinking or beer-drinking by themselves can also lead to alcoholism. Thus among 13 cases of alcoholic cardiomyopathy recently studied by Brigden (1957), seven occurred in people who had drunk beer only (averaging 10 pints a day for 10 to 40 years), though symptoms and signs of heart disease had appeared earlier and were more severe in the six spirit drinkers (1 or more bottles of spirit a day for 10 to 20 years).

It may be of some interest here to note that according to the Expert Committee on Alcohol and Alcoholism (1955), the prevalent form of alcoholism varies between the predominantly spirit-drinking and the predominantly beer-drinking countries or social groups. In wine-drinking and some of the beer-drinking countries, the prevalent form of alcoholism is characterized by the "inability to stop", the drinker being unable to withstand any, even short

periods of abstinence, without losing the ability to regulate his alcoholic intake or necessarily getting drunk. In countries or social groups, on the other hand, that predominantly consume spirits, the prevalent form of alcoholism is characterized by the loss of control once a particular drinking bout has been started: the drinker only stops when he either becomes too sick or too drunk to consume more alcohol.

Jellinek points out that many French drinkers suffer from some aspect of chronic alcoholism without ever having shown intoxication or behaviour characteristic of "addictive" (i.e. loss of control) drinking. One may wonder whether the same may possibly be true of the seaman, who may never show "loss of control". Similar considerations may perhaps also apply in this country to other occupations or groups where regular heavy drinking is the custom, such as publicans, barmen, and perhaps some expense-account drinkers.

Certain other theories of Jellinek (1958) may have some bearing on our discussion. It certainly seems that among seamen heavy drinking, drunkenness and certain drinking behaviours ordinarily frowned upon, are regarded as commonplace enough not to arouse censure, ostracism, or very much attention. In Jellinek's view, it can be expected that in groups, countries or cultures where heavy drinking is socially accepted, relatively "normal" and not very "vulnerable" people may become alcoholics. In groups, on the other hand, where heavy drinking and drunkenness is very much frowned upon, in the main relatively unstable and "vulnerable" persons will become alcoholics. However, Jellinek stresses that though "habit" and social acceptance of heavy drinking are facilitating factors, they do not account for the whole phenomenon, and a small degree of psychological vulnerability is needed even among the members of such groups to trigger off alcoholism. In countries with social acceptance of heavy drinking "largely—but by no means exclusively" psychologically highly vulnerable people will be exposed to the risk of alcoholism.

Jellinek includes the Anglo-Saxon countries among those with a low acceptance of heavy drinking. In this country, seamen and the other groups named above seem, however, to constitute exceptions in this respect. Thus it might perhaps be expected that among seamen, with their regular and accepted heavy drinking habits, even individuals with few neurotic or psychopathic traits may fall victims to alcoholism in one of its various forms, though not necessarily to alcohol "addiction".

Apart from a few frank psychotics, among large samples of alcoholics taken at random, one usually finds psychopathic, neurotic and relatively "normal" types of personalities in varying proportions, depending in the main on the origin of the particular sample studied. On the basis of clinical impression, interview and information obtained from the men themselves, it was estimated that neurotic and "psychopathic" traits were relatively common in the present sample. Thus 44 gave a history of marked neurotic traits in childhood and 21 had been in trouble with the law for offences other than being drunk and disorderly, and not connected with drinking. The risk of alcoholism supervening on heavy drinking may be expected to be greater in such "vulnerable" personalities than in the relatively stable individual.

In this connection one has, however, to remember that to some extent the "psychopathic" or antisocial behaviour may not have been characteristic of the pre-alcoholic personality but may have become superimposed as a consequence of many years' heavy drinking. On the other hand, perhaps the desire to go to sea in some ways resembles the tendency to escape from reality and frustration which is so common a finding in alcoholics. Very often, too, alcoholics are

restless individuals who, though often very able, lack staying power. In the present sample (Table III), only one-sixth mentioned the desire to travel and similar factors as the main reason for their decision to go to sea. Powdermaker found that one-fifth of his sample of American merchant seamen gave as reason their wish to escape from home and responsibility and he felt that seamen chose going to sea because they could thus avoid loneliness, responsibilities and close emotional ties which are intolerable to them. Heath stated that most seamen went to sea to escape the rigours of life ashore, and he felt that in seamen the occupation fulfilled much the same function as alcohol.

TABLE III
Reasons Given for Going to Sea

		21 "Light" Drinkers	27 "Moderate" Drinkers	25 "Heavy" Drinkers	26 "Very Heavy" Drinkers
"Family" ..	38:	7	11	7	13
"Travel" ..	16:	5	4	6	1
"Other reasons"	45:	9	12	12	12
	1:	Teetotal. ("Other reasons" given.)			
	100:				

One could perhaps mention certain other points of similarity between seamen and alcoholics. The alcoholic is often a dependent person, e.g., he often likes to lean on a stronger and sometimes older wife, and he does well in the security and shelter of a hospital where everything is taken care of. The seaman too finds shelter and security in his ship; he has not got to worry over items such as food, clothing and accommodation. The comment of an alcoholic businessman, who after treatment at Warlingham Park Hospital chose to go to sea, may be of some interest in this connection. This man had been warned by other members of the alcoholic group, including seamen, against going to sea because of the continual temptation to drink. Having been at sea for several months, he wrote in a letter to the group magazine (Whaakey-Whaakey, 1956): "... it is easy to remain dry in an 'institution' because of a feeling of protection and therefore freedom from worry . . . A ship is, in fact, a floating institution, and I feel . . . that no one can get at me to worry me . . ." One could furthermore suspect that in certain alcoholics, as well as certain seamen, a yearning to escape from a boring humdrum and routine existence, a search for an exciting form of escapism may have carried the former into excessive drinking, the other to the sea. There may perhaps also be a relatively high incidence among seamen of factors such as psychosexual immaturity and instability, held by some analysts to be points of major importance in the genesis of alcoholism.

It follows from the foregoing discussion that not only does the seaman's heavy drinking carry with it a greater risk of alcoholism than is present in the average population, but that moreover, because of a possibly higher incidence of a psychological vulnerability, there is a greater than average risk of taking an escape route such as excessive drinking. This may be enhanced by factors such as the lack of facilities for recreation or suitable companionship, etc. aboard or ashore, and by the lack of other interests. A few may have indeed gone to sea because of the opportunities for drinking, free from irksome restrictions and supervision present at home. Work in a hot and dry atmosphere and the ready availability of alcohol may also act as additional incentives to drinking.

Drinking Histories

The drinking histories of alcoholics contain certain very frequently recurrent events (Jellinek, 1952). Their occurrence may provide an early pointer to the possibility of later development of alcoholism. The present sample of seamen were therefore interviewed with regard to certain of these events (Table IV).

TABLE IV
Certain Features in Drinking Histories

		21 "Light" Drinkers	27 "Moderate" Drinkers	25 "Heavy" Drinkers	26 "Very Heavy" Drinkers
		1 (T.T.)	—	—	—
(a)	Age at first drink: Below 15 years ..	3	3	—	5
	15-20 years ..	15	22	22	21
	21 plus ..	3	2	3	—
	"Features":				
(b)	Gulps drinks ..	0	3	4	10
	More efficient after drink ..	8	14	9	15
	Helps associate with people ..	16	22	22	20
	Needs more drink to achieve same effect ..	2	4	11	14
	Tolerates less drink than before ..	3	7	3	4
	Pulling a blank ..	5	9	3	9
	Early morning drinkers ..	0	1	3	11
	Solitary drinking ..	4	18	13	16
	Fits after drinking ..	0	0	0	0
	Shakes and tremors ..	3	3	9	15
	D.T.s ..	0	0	0	2
	Makes sure drink handy ..	1	3	7	7
	Other drugs ..	0	0	0	2
	Periods on the wagon ..	6	15	13	10
(c)	Early morning drink "appeals" ..	2	8	8	17
	" " " "appals" ..	7	9	7	4
	" " " "indifferent" ..	10	10	10	5

Most seamen had taken their first drink when between 15 and 20 years of age. This corresponds to findings among both alcoholics (Glatt, 1955) and social drinkers (Glatt, 1960) in this country. Table IV, however, raises the question whether very heavy drinkers began to drink earlier in life. Thus among "light" drinkers, 13 seamen had started to drink up to the age of 17, 8 later on; among the "very heavy" drinkers the respective proportions were 23 against 3.

The great majority of these seamen had experienced their first drunkenness episode between the ages of 15 and 20. This again corresponds in the main with the findings in English alcoholics and social drinkers.

In Jellinek's Chart of Alcohol Addiction an increase of alcohol tolerance in the pre-alcoholic symptomatic phase is followed by the prodromal phase containing features such as alcoholic amnesias with "medium" intake of alcohol, secret drinking, preoccupation with alcohol, gulping of drinks and guilt feelings about drinking.

As seen from the Table, such occurrences were not too uncommon among the seamen, as were also certain other features which ordinarily are only seen in the more advanced stages of alcoholism, such as solitary and early morning drinking, uncontrollable tremors, and decrease in alcohol tolerance.

In Jellinek's view, symptoms such as frequent alcoholic amnesias, surreptitious drinking, avid drinking "foreshadow the development of alcohol addiction". Such features may occasionally also be seen among non-alcoholic drinkers, as e.g., amnesias and gulping of drinks (Roe, Glatt, 1960). However, it must surely be ominous if a number of features usually regarded as prodromal or as essential features of alcoholism occur in one and the same individual. Thus, of the 30 seamen who had at some time or another experienced severe shakes or tremors after drinking, there were eight who also had had alcoholic amnesias, had started solitary drinking and experienced an increase in alcohol tolerance. All these 8 were predominantly beer drinkers, 6 among them also consuming spirits. Of these 8, 5 also drank first thing in the morning ("Eye openers", referred to by seamen as "Curers"). Of the 7 heavy or very heavy drinkers who reported a decrease in tolerance to alcohol, 4 also had experienced severe tremors, 2 of the latter also alcoholic amnesias. A combination of symptoms such as in five members of the first mentioned group and in 2 in the second would certainly arouse at least a grave suspicion that these seamen were well on the road to alcoholism. Early morning drinking is generally considered to be an ominous sign and it is perhaps noteworthy that with one exception, all these early morning drinkers fell into the "heavy" or "very heavy" class of drinkers.

Among the group of "social drinkers" studied (Glatt, 1960) only 6 among 80 men had in the past taken an early morning drink, as compared with 86 per cent. among alcoholic patients of Warlingham Park Hospital. Drinking first thing in the morning after is generally a prospect that "appals" the ordinary social drinker, as it did a certain number of these seamen. Yet quite apart from those who had actually taken early morning drink, an additional number found the prospect definitely "appealing", which again points to the acceptance of heavy drinking among seamen.

"Solitary" drinking is another feature generally regarded as an ill omen. It only occurred in the history of 3 of the "social" drinkers investigated in the past, as against 75 per cent. of male alcoholics. Solitary drinking was very common among these seamen, being reported by approximately half of them. It occurred, however, also frequently among light and moderate drinkers, and for several reasons peculiar to the occupation in the case of seafarers this feature possibly does not carry the sinister connotation ordinarily ascribed to it (e.g., drink is always available in the cabin). Similar considerations may hold good for "going on the waggon", a very common occurrence among alcoholics (e.g., it was reported by 80 per cent. of the Warlingham Park Hospital alcoholics), who from time to time have temporary periods of complete abstinence, in an effort to stem the progressively heavy and destructive tide of their drinking.

Fits after drinking (not occurring among the seamen), D.T.s (reported by two seamen), and "protecting supply of liquor" are other not very infrequent happenings among alcoholics. "Protecting supply" was reported by 18 seamen, chiefly among the heavily drinking ones. In the history of the W.P.H. alcoholics this feature was reported in 55 per cent. Here again the special conditions may make this of less prognostic importance in the case of seamen as drink is always at hand and easily obtainable and no special "protection" device may be necessary.

Alcoholics often state that in their early history drink gave them a feeling of greater efficiency or helped them to mix better with people. Among the Warlingham Park Hospital alcoholics almost all had felt in the past that

drinking helped them in "mixing"; about 3 in 4 also felt more efficient. Among social drinkers 26 in 80 felt they "mixed" better; only 5 felt "more efficient". If one believes in the important rôle of psychological factors in the causation of at least a great proportion of cases of alcoholism, the finding that so many seamen feel that somehow or other alcohol helps them to establish interpersonal relationships or carry out their work, may perhaps be of some significance, both in regard to the tendency to drink and the "psychological vulnerability" of seamen to the effects of alcohol.

When comparing certain drinking behaviours in light, heavy drinkers, etc., some points may be of interest. As expected among the "light" drinkers, early morning drinking appealed least, and did, in fact, never happen. Among the "very heavy" drinkers these features were common; the "moderate" and the "heavy" drinkers ranked in between. The difference between the "light" plus "moderate" drinkers on the one hand and the "very heavy" drinkers is statistically significant in regard to "early morning drink appeal" and to taking early morning drink (at 1 per cent. level).

Compared to the light and moderate drinkers, among the very heavy drinkers (omitting the "heavy" group), gulping drinks was relatively more frequent (difference statistically significant at 1 per cent. level) as was increase in tolerance (statistically significant at 1 per cent. level), early morning drinking (statistically significant at 1 per cent. level), tremors (statistically significant at 1 per cent. level), and ensuring supply of drink (not significant). The only instances of D.T. (and of taking other drugs as well) occurred among the very heavy drinkers. On the other hand, there seemed to be little difference in regard to the decrease in tolerance, the occurrence of amnesias, and the periods "on the wagon".

As far as the "personality" aspect is concerned, 9 had shown definite neurotic childhood traits and had also been in trouble with the law for offences other than merely being drunk and disorderly. Of these 9 "offender-neurotics", 6 were very heavy and 2 were heavy drinkers. This proportion is much higher (to a statistically significant degree—5 per cent. level) than the proportion of heavy and very heavy drinkers among the rest, and it bears out the influence of "personality" in regard to the tendency to excessive drinking among seamen, quite apart from the merely "occupational" hazard.

The same conclusion is reached when finally one considers the number of seamen who neither reported childhood neurotic traits nor had been in any trouble with the law. It can be assumed that the 45 men falling under this heading are the psychologically most stable contingent among the present material. Among these, 15 were heavy and 9 very heavy drinkers. The proportion of very heavy drinkers is statistically significantly different (at the 5 per cent. level) from the "offender-neurotic" group. On the other hand, however, amongst the heavy and very heavy drinkers in this originally relatively "normal" group of seamen, there were 8 with a history of severe tremors, of whom 5 were drinking solitarily, 3 were drinking first thing in the morning and 2 had experienced alcoholic amnesias. Thus, even among the originally "normal" personality type, quite a few showed signs indicative of developing alcoholism which in these cases may have as its main origin the "occupational hazard" rather than personality vulnerability. One could, of course, also argue that the finding that only a certain proportion of these men, who all had been exposed to the same occupational hazard, show early indications of alcoholism, shows a certain "psychological vulnerability" even among these men; an argument which Jellinek brings forth in support of his theory that even in

countries with wide acceptance of heavy alcohol intake "a certain psychological deficiency" may be responsible for the heavy drinking of a small minority.

Finally, *what type of alcoholism* could be expected among these seamen? As already pointed out, there is a risk of the development of complications denoting "chronic alcoholism". One must, however, keep in mind that nowadays nutritional deficiency is regarded as chiefly responsible for the development of the "complications" of alcoholism, rather than the toxic effects of alcohol itself. In the case of the seaman the good food—rich in proteins and vitamins—may therefore be expected to some extent to militate against the development of such complications in the drinking seaman. Predominance of beer drinking among these seamen, in particular among the crew, rather than spirit drinking, might possibly indicate the relatively greater risk of the type of alcoholism of the "inability to stop drinking" rather than of the "loss of control" type, comparable to the "inveterate drinker" type of the predominantly wine-drinking countries (Jellinek, 1958). In fact, "loss of control"—the hallmark of alcohol "addiction"—was not observed nor reported by these men, except during prolonged drinking "sessions". It is, of course, possible that later on "loss of control" may yet develop. However, many of these men had been drinking heavily for many years and have shown some "pre-alcoholic" or early alcoholic features for years. According to Jellinek (1952), if the "loss of control" has not set in after 10 or 12 years of heavy drinking, while the "prodromal symptoms" were persistent and amnesias rare and not occurring after medium alcohol intake, it is "rather safe" to diagnose "non-addictive" alcoholism. In contrast to the "addictive alcoholic" "the 'non-addictive alcoholic' can avoid drunken behaviour whenever the social situation requires it", so that there is a lesser danger of social repercussions. However "... there is the same tendency towards isolation as in the addict, ... Even D.T. may develop ... Generally, there is a tendency towards a progressive dominance of alcohol resulting in greater psychological and bodily effects".

The danger that even in the originally fairly stable personality habitual alcoholic excess may bring in its wake serious personality deterioration and consequences such as loss of efficiency, greater risk of accidents and errors in judgment, and of V.D., must not be lost sight of, even if the risk that "... a non-addictive drinker may slide to the bottom of society" is naturally greater "in the presence of grave underlying psychopathies".

The impression that seamen by and large are heavy drinkers is borne out by the findings of the present study which may be compared with another study of alcoholism in Swedish merchant seamen. In a paper read at the 26th International Congress of Alcohol and Alcoholism in Stockholm, A. Otterland (Congress abstract, 1960, page 206) reported that alcohol presented a serious problem among merchant seafarers in Sweden. 3.6 per cent. of Swedish seamen were chronic alcohol addicts when they first signed on and 18.3 per cent. when they last signed on. The high mortality rate from violent causes in seafarers in Sweden was considered to be largely due to the drinking habits. Acute alcohol intoxication was not seldom the cause of accidents on ships. Death from accidents and from suicide were not uncommon and of the men who committed suicide 55.5 per cent. were intoxicated on the day of their death, and among fatal accidents 37.2 per cent. Heavy drinking seems a much more regular and accepted social habit and "pastime" among seafarers than among the ordinary population. This impression is also supported by seamen's replies to the question as to the amount of their drinking. The usual reply is: "moderate" or "average". When this question is gone into in more detail, it

generally emerges that the seaman's idea of "moderate" drinking was 10 to 12 pints of beer per day or one bottle of spirits. A similar picture emerges from the reports of a few wives of seamen seen at outpatient clinics and questioned about their husbands' drinking habits. A recent newspaper story featured an ex-seaman's claim that he had occasionally drunk up to 10 bottles of spirit per day, a claim which the magistrate found "extremely difficult to accept".

Under these circumstances it seems likely that before a seaman is regarded by his fellow seamen (and by himself) as an "alcoholic", he would have to develop marked and definite physical or mental complications, a feature naturally militating against early diagnosis.

Alcoholism could therefore be expected to be a greater risk among seamen than among the ordinary population. This expectation is supported by the frequent findings that seamen are not rare among alcoholics observed in hospitals and outpatient clinics looking after this type of patient. Thus, among 500 alcoholics admitted to Warlingham Park Hospital between 1952 and 1958, there were nearly 20 seamen.

In spite of obvious objections, liver cirrhosis is often regarded as the best among several unsatisfactory indicators of the prevalence of alcoholism (W.H.O., 1951). In a London seamen's hospital 10 cases of alcoholic liver cirrhosis were observed in the five-year period between 1954 and 1959 (2 of these men died). The mortality among seamen from liver cirrhosis in England and Wales in the years 1949/53 appears to have been about double that of the general male population though it is still less than a quarter of that in publicans and no more than two-fifths of that in barmen. (Registrar-General.)

In view of this risk of alcoholism among seamen, is there anything that could be done to minimize such a danger? For *prophylaxis* as well as for early diagnosis and treatment, a greater awareness of the problem is important, both on the part of the men, the employers and ship surgeons. Greater awareness and better education as to the risks, the early symptoms and the possibility of successful treatment will lead to a more constructive attitude. Other factors, such as the provision of alternative methods and facilities for recreation on board and ashore (e.g. seamen's clubs), and of alternative non-alcoholic beverages, may all be worth trying. Some ships do not carry alcoholic drinks, but it seems doubtful whether this lack is not more than compensated by terrific "benders" when the seaman sets foot ashore. This impression was confirmed in a subsequent journey made by one of us (H.K.R.) on a ship in which alcoholic drink for the crew was severely restricted by order. The crew made up for this ashore and because of the heavy drinking which occurred in various ports, the Captain in self-defence, refused shore leave for the crew in several of these ports.

As to early diagnosis, continual observation possible in the Merchant Navy offers an opportunity to spot the potential or early alcoholic possibly many years before alcoholism has become firmly established. A ship's surgeon conversant with the early stages of the condition may thus be in a position to discuss matters with the seaman and where necessary to encourage him to seek treatment at an early phase, and perhaps later on to keep in touch with A.A. groups.

As to the question of *treatment*, there is no doubt that alcoholic seamen can "recover", even after many years of heavy drinking. This is illustrated, e.g., by a number of cases recently treated at Warlingham Park Hospital, as, e.g., by that of a 1st officer who after treatment returned to sea, regularly attended A.A. meetings at each port, and remained a faithful and regular contributor to

the magazine of the hospital alcoholic group until his death from a malignant disease.

American observers (Heath, 1945) found group therapy and A.A. (J.I.F., 1947) helpful for alcoholic seamen; groups were set up in a rest centre, and an A.A. group was formed, the so-called "A.A. Seamen's Club", with a programme copied closely from A.A. but exclusively for seamen. Such procedures were "often achieving results" (Heath) and were responsible for a programme of rehabilitation and education (J.I.P., 1947). A.A. of course can be of the greatest value to the seaman who wants to stay sober by providing him like other "loners" with an opportunity to stay in correspondence with other members, and easily to make contacts with non-drinking friends wherever his journey may take him. Certainly the therapeutic regime for alcoholics at Warlingham Park Hospital of community living, group psychotherapy, introduction to A.A., supplemented by drug therapy, e.g., Disulfiram (Glatt, 1955), was found to be as popular and frequently successful with alcoholic seamen as with other alcoholics.

CONCLUSIONS

Heavy drinking is common among merchant seamen, and drinking behaviours which may arouse unfavourable comment otherwise are not infrequent and "accepted" as normal. The risk of alcoholism seems therefore to be a greater hazard than with most other occupations, the more so perhaps as the personalities of many seamen show a number of personality traits often found also in alcoholics. In view of this occupational hazard a programme directed at education, prophylaxis and early diagnosis seems called for. In contrast to most other occupations the opportunity of observing prodromal and early symptoms, perhaps years before alcoholism becomes fully established, seems to offer a good opportunity for early diagnosis. Like other alcoholics, so also those who are merchant seamen, can recover in particular when treatment and after-care is carried out in collaboration with A.A.

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REFERENCES

- AMARK, C., "A study in alcoholism", *Acta Psychiat. et Neurol. Scand.*, 1951, Suppl. 70, Copenhagen.
- BRIGDEN, W., *Lancet*, 1957, ii, 1179 and 1243.
- GLATT, M. M., *Brit. J. Addict.*, 1955, 52, 55. (a).
- Idem*, *Brit. med. J.*, 1955, 2, 1029. (b).
- Idem*, *Acta Psychiat. et Neurol. Scand.*, Suppl. 1960 (in the press).
- Idem* and WHITELEY, J. S., *Mon. Psychiat. Neurol.*, 1956, 132, 1.
- HEATH, R. G., *Quart. J. Stud. Alc.*, 1945, 5, 555.
- JELLINEK, E. M., in *World Hlth Org. techn. Rep. Ser.*, 1952, 48, 29.
- Idem*, "World Health", 10, 4 (quoted from *Conn. Rev. Alc.*, 1958, 9, 25).
- J.I.F., *Quart. J. Stud. Alc.*, 1947, 8, 498.
- ØDEGÅRD, Ø., European Seminar and Lecture Course on Alcoholism, 1951. Copenhagen, p. 31.
- OTTERLAND, A., Congress abstract, 1960, page 206.
- "Patterns of British Life" (1950). Hulton Press Ltd. Quoted from Tongue, A., *Alcohol Production and Consumption in Great Britain and Northern Ireland*, 1955. Lausanne.
- POWDERMAKER, F., *Amer. J. Psychiat.*, 1945, 101, 650.
- Registrar General's Decennial Suppl. on Occupational Mortality, Part II.
- ROE, A., quoted from JELLINEK, E. M., 1946, 7, 28.
- ROSE, H. K., *Public Health*, 1959, 73, 298.

- SNYDER, C. R., "Alcohol and the Jews", Monographs of Yale Center of Alcohol Studies, No. 1, 1958.
- WHAAKEY-WHAAKEY, 1956, 3, 22; 1956, 3, 19.
- W.H.O. Exp. Comm. Ment. Hlth., Alcoh. Subcomm., *World Hlth Org. techn. Rep. Ser.*, 1951, 42, 21.
- W.H.O. Exp. Comm., "Alcohol and Alcoholism". *Ibid*, 1955, 94, 8.
- ZWEIG, F., "Labour, Life and Poverty" (1948). Quoted from Tongue, A., *Alcohol Production and Consumption in Great Britain and Northern Ireland*, 1955. Lausanne.

DRUGS—A TOOL FOR RESEARCH IN PSYCHIATRY*

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"For want of a nail . . . a kingdom was lost; for want of a hydrogen transfer . . . a mind was lost—all for the lack of functioning chelates" (1).

THE history of medicine reveals man's search for drugs to ease his diseases and possibly cure them. Advances have been made pharmacologically in the treatment and prevention of many infectious diseases. While psychiatry has benefited from these discoveries in the treatment of certain infections of the central nervous system, in general, the treatment of psychiatric diseases remains largely empirical. The psychopharmacologic treatment of psychiatric diseases continues to be based on the presenting symptom-complex of the patient; this is because the aetiology is still unknown, for in reality our explanations do not explain. The phenotropic drugs currently used in psychiatry are important for their pharmacodynamic effect since they change the cellular environment in which mental processes are maintained. Pharmacodynamic research in psychiatry has revealed possible neuroanatomical sites and many biochemical effects of these drugs. The specific correlation of these findings with clinical effects is lacking. When this is accomplished, it is probable that better drugs will be developed.

Obviously, in the rational use of drugs for the treatment of mental diseases, it is essential to have a complete understanding of the known effects of these drugs on total behaviour; this includes both anatomical and biochemical nerve structures as well as their over-all pharmacologic effects in the total organism. Fortunately, some, but too few, of the aims of psychopharmacology have been achieved. The phenothiazines and rauwolfia alkaloids have a high degree of specificity for the symptomatic control of virtually any state of psychomotor excitement. They are useful in the control of agitation, aggression, anxiety, catatonic muscular signs, delirium, destructiveness, delusions, excitement, hallucinations, illusions and in many of the chronic patients, deterioration. These tranquilizers have only a minimal influence on effect, a primary disturbance in all neuropsychiatric diseases. There is a greater lack of unanimity as to the drugs which are to alleviate depression and improve affect. The antidepressives and psychic energizers alleviate these symptoms in many neuroses and psychoses. This clinical finding provides the rationale for combination therapy in the schizophrenics (2).

If the ultimate aim of psychopharmacology is to be reached, that is, to devise a rational therapy, the elucidation of the pathology must be made. It is my opinion that drugs have been the most important tool for investigating the biochemical and physiological mechanisms in diseases of man.

* Presented at the Annual Scientific Meeting at Gracie Square Hospital, 30 March, 1960, New York City.

Therefore, we must use the presently available psychopharmacologic agents to provide the changes at the cellular molecular level necessary for the elucidation of both normal and pathological mental processes. This can be accomplished only by a correlation of all the clinical changes (therapeutic and untoward) with their pharmacologic mechanisms.

Previously, I have pointed out the value of the side-effects of drugs in giving us an understanding of probable aetiological factors in neuro-psychiatric diseases (3, 4). Every action we observe, objectively and subjectively, may assist us in the acquisition and systematization of positive knowledge. This is the development of a science. In view of my present knowledge, my remarks will be concerned with changes in amine and protein metabolism and what an understanding of these changes by psychopharmacologic agents may bring.

Both tranquillizers and energizers have been shown to shift the dynamic equilibrium of several known amines and serum proteins. Amine metabolism certainly holds a paramount position in psychiatric diseases since the level of several autonomic amines is known to change the ebb and flow of these disease states. An example of a dynamic amine equilibrium is the histamine-catechol amine relationship. Nonspecific stress brings about a discharge of epinephrine from the adrenal gland and release of norepinephrine from the sympathetic nerve endings. Histidine decarboxylase activity is increased by stress and the injection of epinephrine and norepinephrine. These observations suggest that there may be a physiological balance between histamine and catechol amines. This would imply that a failure to maintain a dynamic balance would result in a pathologic state as indicated by circulatory shock (5). Previously, I pointed out the evidence for histamine stimulating the hypothalamic-pituitary-gonad axis via rhinencephalic pathways and that there was considerable data to support the concept that the limbic system was a potential anatomical site for emotional and intellectual functions (6). Reserpine releases catechol amines and they will antagonize the elevated histamine levels from hydralazine (a diamine oxidase, histaminase inhibitor) in the treatment of hypertension. There is another histamine metabolizing system that is inhibited by iproniazid. This system is composed of a methylating enzyme and an oxidative enzyme. Iproniazid inhibits only the oxidative and not the methylating mechanism. Methylhistamine is a substrate of monoamine oxidase; therefore, the metabolism of histamine can be regulated by levels of catechol amines and inhibitors of monoamine oxidase. This metabolic balance is known to be affected by both tranquillizers and energizers in the treatment of neuropsychiatric diseases (3). Tryptophan peroxidase-oxidase is an adaptive enzyme and an increase can be brought about by the stress reaction of the adrenal-pituitary system (7). Tryptophan peroxidase-oxidase opens the pyrrole ring of tryptophan with the loss of carbon to yield kynurenine. Both the phenothiazines and hydrazines block the eosinopenic response to stress probably by their action on ACTH secretion of anterior pituitary lobe (8). These studies indicate their mechanisms are still obscure and their elucidation should give valuable information on the normal mechanism of action of physiological processes. The enzyme systems for the metabolism of these amines are known to be influenced by hormones, trace metals, central nervous system monitoring mechanisms and phrenotropic drugs. Further elucidation of these regulatory factors will depend upon increasing knowledge of the co-ordination structure (chelate) of these reactants *in vivo* with their thermodynamic interrelationships.

From the fragmentary experimental data available in 1957, I speculated

that a possible mode of action of the phenothiazines, rauwolfia alkaloids and iproniazid was to maintain the physiological dynamic equilibrium between oxidative deamination and transamination (9). This disturbance in equilibrium results from unsatisfactory chelate formation (10) with aberrant oxidation and coupling of phosphorylation. These phrenotropic drugs have a regulatory action on the protein synthesis of the reticuloendothelial system and the liver; specifically they regulate a large number of biogenic amines essential for globulin synthesis. The primary effect of these proteins in a biologically active molecule is the regulation of the intensity and duration of chelate bonds for essential enzymatic processes. The phrenotropic drugs may also be able to substitute as amines in enzyme complexes and regulate the strength of bonds between the two donor atoms during the catalytic process. Two independent investigators have observed that indoles form chelates with riboflavin in which one electron from the tryptophan is taken up by a riboflavin molecule (11, 12). Proteins that contain tryptophan, as well as serotonin and other indoles may reduce and form chelates with a semiquinoid form of riboflavin. In addition to the high affinity of serotonin for riboflavin, so has lysergic acid and bufotenine and these substances have been implicated in physiological and pathological psychic functions. The tryptophan-riboflavin complex probably represents a molecular compound (13) through the formation of a co-ordinate covalent bond between the two components. It appears that one pair of the π (π) electrons of a double bond in the aromatic compound (tryptophan) may be the donor pair and constitutes a charge-transfer (14) where an electron goes from the highest filled orbital of the donor to the lowest empty orbital of the acceptor. This reaction is probably important as a means to transfer energy in biological reactions. The semiquinoid form of riboflavin resulting from the acceptance of one electron is a free radical; another free radical could result from the protein or tryptophan donating an electron. It is possible that flavoprotein itself contains a semiquinoid form stabilized by tryptophan in the protein as this form can be produced and stabilized by the simple addition of serotonin, an indole derivative at neutral pH.

Michaelis (15) names the intermediary, half-reduced and half-oxidized form with the configuration of a free radical, a semiquinone. Compounds of this type, having an unshared electron, are extremely unstable owing to their great reactivity. Many oxidation-reduction systems both biologic and of synthetic origin frequently take place in two overlapping steps, each involving a single electron; the resulting semiquinone or free radical formation, at a certain pH, is believed to be essential for all biologic oxidation processes as they depend on intermediary production of such radicals (16). In the cell, mental complexes such as cytochrome with a one-electron shift have relatively high potentials, whereas the substrate lactic acid, in combination with its specific enzyme, has a two-electron shift and a relatively low potential. The flavins of intermediate potential can be oxidized by transferring one electron at a time thus bridging the gap between the one- and two-electron shift systems. Without an enzyme system of this type it is difficult to picture the mechanism for transfer of electrons from lactic acid to the cytochrome system for its oxidation to pyruvic acid.

The cytochrome system enzymes act as the middlemen in the delivery of the oxidizing power of molecular oxygen to the eventual substrate. They are a group of metal (Fe and Cu) porphyrin-protein chelates that differ from each other in the nature of the protein, and possibly in the linkage of the

latter to the metal porphyrin. The need for the cytochrome system is to provide a series of oxidation-reduction reactions of low potential for a high oxidation potential would damage or destroy the cells. The cytochromes transfer electrons only. They do not transfer hydrogen, therefore coenzymes I and II or flavoproteins are essential for hydrogen transfer. Cytochrome oxidase is essential to the oxidation of the cytochromes, a, b, c and possibly accessory cytochromes. The oxidase is very insoluble but in combination with cytochrome c it is possible to obtain a rough idea of its potential because this combination oxidizes paraphenylene diamine (PPD) rapidly and the rate falls off when a certain amount of the diamine is formed (17).

Polyphenol oxidase (ceruloplasmin) in man is inhibited by the phrenotropic drugs, chlorpromazine, iproniazid, reserpine and procaine (18). The metabolic rôle, if any, of this enzyme system in schizophrenia remains to be determined but there are many acute psychotic patients with elevated levels of ceruloplasmin. There are publications (19) stating that ceruloplasmin was probably the responsible enzyme system for this oxidation of PPD in schizophrenics at a faster rate than observed in normals. We obtained data that would indicate a cysteine-cystine system was one of the biologic oxidation-reduction systems associated with this phenomenon (20). Cysteine is almost as active as ascorbic acid in an oxidation-reduction system. Others thought ascorbic acid to be the factor in the different rates of oxidation found between schizophrenic and normals (21). Ascorbic acid is able to relieve the decoupling effect of pentobarbital on oxidative phosphorylation. Nielsen and Lehninger (22) recently stated that the phosphorylation observed is actually coupled to electron transport between cytochrome c and oxygen, since ascorbic acid apparently acted as a nonenzymatic reductant of cytochrome c. Their experiment, however, was not completely conclusive because of the possible oxidative or phosphorylative reactions uniquely associated with the presence of ascorbic acid. Cohen and Cohen (23) indicate that ascorbic acid was significantly related to phosphorylation and their relation may be one of self-phosphorylation linked to the cytochrome system through the oxidation of ascorbic acid. They also found that ACTH had a stimulatory effect on this system for the generation of the high energy bonds of phospho-ascorbic acid and this could be a means in which ACTH controls corticosteroid synthesis.

All this raises the essential question: Do the psychopharmacologic drugs' therapeutic results depend on the previously discussed reactions? Does reserpine break this riboflavin semiquinoid-serotonin complex or does it free serotonin in order that it might complex with riboflavin and maintain a shift of electrons to the respiratory oxidative system? Reserpine containing an indole moiety may be in competition with indoles other than serotonin to form molecular compounds and enter into charge-transfer reactions. The charge-transfer from amines and proteins to riboflavin is very interesting if this electron donation is passed on by the flavins to the oxidation system. Are the electrons transferred from the amine or protein replaced by electrons produced by the dehydrogenated diphosphopyridine nucleotide (DPN) linked enzymes? If this electron transference in the DPN enzyme system were modified by the replacement of vitamin B6 (niacinamide) with iproniazid (24), this could explain a possible mechanism for its inhibition of monoamine oxidase. It was shown that oxidation of iproniazid was necessary for irreversible inhibition of monoamine oxidase. If this were so, it is possible that iproniazid acted initially as a substrate for the enzyme. The coenzymes I and II which are adenine-nicotinic acid amide complexes are reoxidized by

the flavoprotein catalysts. Iproniazid, in addition to its being a component of DPN, may act through its ability to chelate with copper. The breakdown of dilute solutions of the hydrazines has been shown to require oxygen and either cupric or ferric ions. This auto-oxidation is of biological importance because it helps characterize other biologically active substances. The formation of free radicals during the cupric-catalyzed auto-oxidation of iproniazid is supported by the fact that this system stimulated polymerization of styrene and produced coloured reaction products from phenols. It is probable that cupric ion accepts single electrons from hydrogen peroxide to form free OH radicals and reaction intermediates formed from the iproniazid oxidation may be free radicals and may be responsible for its toxicity (25). The iron may be in the form of haemin and clinically this correlates with observations noted in the haemoglobin hydrazine complexes in patients receiving these drugs. Heavy metals inhibit the oxidase electron-transporting mechanisms but not the amine dehydrogenase (26). It is probable that, like other oxidase systems, monoamine oxidase consists of a dehydrogenase, linked to a respiratory chain which may include cytochrome and flavins. Lagnado and Sourkes (27) have succeeded in linking amine dehydrogenase directly with tetrazolium salts so that the electron-transporting system of the oxidase is bypassed. Further advances on the relationship of heavy metals, sulphhydryl groups, cytochromes and flavins in the monoamine oxidase system await the characterization of this system and the possible separation of the amine dehydrogenase.

There are additional data that complex formation may be essential to obtain pharmacologically active substances. A molecular compound of chlorpromazine-riboflavin has been observed (28) and this product of complex formation may infiltrate into a specific cell. Access to both the outside and inside of the cell would provide a function not common with most pharmacological preparations and could account for chlorpromazine's modification of the electron transport processes, degree of phosphorylation and group transfer reactions in protein synthesis. Chlorpromazine is a very good electron donor and there is evidence to believe that such charge-transfer reactions may be a factor in biologic energy transfers. This indicates the need to study the charge-transfer mechanisms associated from chelation of drugs with neurohumoral agents.

Riboflavin as well as the pyridine coenzymes are essential for metabolism of tryptophan. There is evidence to indicate the hydroxylation state in tryptophan metabolism is an oxidative phosphorylation rather than a simple oxidation. Riboflavin was suggested to be a factor in hydroxykynurenine formation and this has been supported by nutritional studies (29); serotonin metabolism probably involves a system similar to that involved in the formation of hydroxykynurenine. Riboflavin might be concerned only with a phosphorylative rather than a purely oxidative function and the increased xanthurenic acid excretion in riboflavin deficiency can be explained in this concept (30). Future interest in hydroxykynurenine are in the pigments formed from its copper and iron complexes and that two molecules may condense to give a phenoxazine derivative.* Phenoxazine can participate in reversible oxidation-reduction reactions and may be able to compete with the isoalloxazine derivative, riboflavin. This is another important area of amine metabolism that warrants investigation in psychic activity.

* Ommochromes.

It has been suggested that sulphhydryl linkages may play a vital rôle in the metabolism of schizophrenia (18), and in the metabolic action of chlorpromazine (31). It is suggested that chlorpromazine may act on sulphhydryl linkage of the respiratory enzymes. This linkage is involved in many steps of the citric acid cycle with a resultant production of energy. Succinic dehydrogenase activity is inhibited by chlorpromazine but can be protected and reactivated by several sulphhydryl compounds. ATP alone does not restore activity but when sulphhydryl compounds co-exist with ATP, the restoration is significant. Cytochrome c has two cysteine molecules across the double bonds of the vinyl groups and they act as points of attachment to the protein. Chlorpromazine, *in vitro*, exerts a biphasic effect on cytochrome c, inhibition in high and stimulation in low concentration (below 10–4M). The significance, *in vivo*, of this biphasic response is not known, but could prove informative.

These findings are highly suggestive that different levels of oxidation-reduction (electron transfer) are involved with phrenotropic drugs and this approach can be used to determine the mechanisms of the respiratory chain involved in oxidative phosphorylation. There are uncoupling agents, such as the barbiturates, so this alone cannot explain the action of these psychopharmacological agents. The other reactions may be related to oxidative phosphorylation and specifically to diphosphopyridinenucleotidase (DPNase) and high energy phosphate bonds. Lehninger (32) has shown that the oxidation of DPNH (reduced) generates through three high energy phosphate groups. One is formed on the oxidation of reduced cytochromes by oxygen; the other two may be formed on the oxidation of DPNH by cytochromes through the flavins. This indicates that chlorpromazine, reserpine and deserpidine modify permeability as DPNH is generated metabolically outside of the mitochondria. The phrenotropic drugs maintain elevated levels of DPN following injections of nicotinamide into mice (33) and the hydrazine monoamine oxidase inhibitors have been shown to produce a decrease in DPN levels in both liver and brain tissues.

After the administration of chlorpromazine there is an increase in the content of ATP in the microsome fraction and no significant change in the mitochondria. Almost all of the transamination reaction occurs in the microsome fraction and it is inhibited by the phenothiazines. There is a deaminating mechanism in the brain that depends on oxidative phosphorylation; this system deaminates the hexosamines which must be phosphorylated by ATP. Oxidation by transamination which requires a pyridine nucleotide and by deamination which requires a flavin would be expected to generate three ATP molecules per oxygen atom (exception α -oxoglutarate yields succinate, with 4 ATP and dehydrogenation of succinic, propionic and isovaleric acids, generates 2 ATP). The ATP generated from the degradation of tyrosine and phenylalanine includes oxidation steps which probably cannot be coupled with phosphorylation. The ammonia binding mechanism depends upon the citric acid cycle to provide the keto acids functioning as amino acceptors in transamination reactions in the brain. This suggests that the primary function of these transamination systems is to provide additional routes for the accommodation of ammonia. If the brain microsomes are like those of the liver, then there would be reason to believe that an ATP increase could indicate the drug effect on protein synthesis. Lindan *et al.* (34) observed that chlorpromazine inhibits the rate of glycine-1-C¹⁴ incorporation into rat brain cortex proteins. The ribonucleic acid (RNA) content of rat brain cortex is significantly reduced by chlorpromazine. These modifications by

phenothiazines in the brain of the amine and protein metabolic system indicate further investigations are essential.

Early in the clinical investigations of the tranquillizers we observed a greater difficulty in management in patients suffering from acute infections (35). We noted that it was desirable to discontinue the tranquillizer in order for the antibiotic therapy to be as effective as expected. Electrophoretic studies of serum indicated many chronic schizophrenic patients have a reduced initial albumin and increased globulin fractions. With tranquillizer therapy there was a drop in globulins up to the 7th to 10th week and then a slow rise to normal values. The α -globulins showed the greatest drop also reaching their lowest level between the 7th to 10th week. Are the previously discussed biochemical phenomena associated with this serum protein shift? Is the reticuloendothelial system (RES) and/or the liver a site of action for these drugs on protein synthesis? Does the shift in available amines for globulin synthesis account for hapten (part of the antigen) formation, with a phenothiazine, which possibly produces sensitization reactions in patients? Remember it is frequently in this 7th to 10th week period that agranulocytosis is observed. We have also observed in experimental animals a marked change in the LD_{50} following a standardized dose of bacteria if the animals had been previously treated with a tranquillizer (36). This not only indicates that the globulin formation mechanism is an essential factor in infectious diseases but also for investigation in psychoses. Can we surmise that these drugs might make tissue transplants in man possible by suppressing the antibody formation? These are a few of the many fragments of data that indicate biogenic amines and their mechanism to form chelates and transfer electrons must be understood if we are to explain psychic activity in man.

It is better to investigate and know the road leads blindly rather than have it remain unknown. Fortunately, explorations of questionable leads and side-effects of drugs continue to provide informative data in the search for explanations of mechanisms and aetiology of neuropsychiatric diseases. Unfortunately, bureaucracy does not provide competent leadership therefore it is essential for individuals with intellectual imagination, intellectual honesty and intellectual courage to provide this leadership.

CONCLUSIONS

I have proposed the concept that psychoses are a disorder of the regulation of metabolic processes rather than an insufficiency of certain enzymes or of essential neurohumoral metabolites. As a rule, only oxidations which involve pyridine nucleotides, flavoproteins and cytochromes can be coupled to phosphorylation. The tranquillizers which inhibit transamination and the hydrazines which inhibit deamination probably act through chelate formation of the pyridine, flavin or porphyrin catalysts. Experimental data allows us to accept the previously stated theories that electron transfer mechanisms have probably an essential function in the action of the psychopharmacologic agents discussed. The regulation of the coupling in oxidative phosphorylation helps to choose the substrate and explain in general terms why the available metabolites are not simultaneously oxidized as a dynamic equilibrium is essential. The regulation of choice of substrates is also a result of enzymic architecture within the cells at a given pH and salt concentration (37) (including the various trace metals). The rôle of riboflavin and potential antimetabolites from indole precursors provides a highly speculative but interesting working concept. The function of stress in providing adaptive activity to the enzymes

in indole metabolism brings it into the realm of psychiatry. The presently available phrenotropic drugs are continuing to serve as research tools in the elucidation of some of the mechanisms of physiologic and pathologic psychic activity.

BIBLIOGRAPHY

1. SAUNDERS, J. C., "Clinical implications of neurochemistry in psychiatry". Presented at Ohio State Medical Association, Neurology Section, April, 1959. Columbus, Ohio.
2. GOSLINE, E., BLUESTONE, H., and SAUNDERS, J. C., " β -Phenylisopropyl Hydrazine (Catron) and its Use in Psychoses", *J. Clin. Ex. Psychopath.*, 1960, **21**, No. 3.
3. SAUNDERS, J. C., "Discussion: Conference on amine oxidase inhibitors", *Ann. N.Y. Acad. Sci.*, 1959, **88**, Art. 3, 719.
4. *Idem*, *Psychic Energizers: A Source of Psychopharmacological Theories. A Pharmacologic Approach to the Study of the Mind*, 1959. Springfield, Ill.: C. C. Thomas, p. 379.
5. SCHAYER, R. W., "Relationship of stress-induced histidine decarboxylase to circulatory homeostasis and shock", *Science*, 1960, **131**, 226.
6. SAUNDERS, J. C., "Some chemical concepts in psychosomatic medicine". *Transactions of the Fifth Annual Meeting of the Academy of Psychosomatic Medicine*, 1958, **103**.
7. KNOX, W. E., "Two mechanisms which increase *in vivo* the liver tryptophan peroxidase activity: specific enzyme adaptation and stimulation of the pituitary adrenal system", *Brit. J. Exptl. Pathol.*, 1951, **32**, 462.
8. KOTHARI, N. J., SAUNDERS, J. C., and KLINE, N. S., "Effect of phenothiazines and hydrazines on pituitary-adrenal response". Submitted for publication.
9. SAUNDERS, J. C., *Etiology of Psychosis Theorized from Drug Actions. Psychopharmacology Frontiers*, 1959, Boston: Little, Brown & Co., p. 405.
10. *Idem*, "Chelation—An integrative chemical concept of psychoses" (Abstract). *Chemical Concepts of Psychosis*, 1958, McDowell, Obolensky, N.Y., p. 156.
11. PULLMAN, B., and PULLMAN, A., "Electron-donor and -acceptor properties of biologically important purines, pyrimidines, pteridines, flavins and aromatic amino acids", *Proc. Nat. Acad. Sci., U.S.*, 1958, **44**, 1197.
12. ISENBERG, I., and SZENT-GYORGYI, A., "Free radical formation in riboflavin complexes", *Proc. Nat. Acad. Sci., U.S.*, 1958, **44**, 857.
13. CLAPP, L. B., "Chemistry of the coordination compounds", *Organic Molecular Compounds* (Chapter 17): ACS monograph series No. 131, 1956, New York: Rheinhold.
14. MULLIKEN, R. S., "Molecular compounds and their spectra. II. *J. Am. Chem. Soc.*, 1952, **74**, 811.
15. MICHAELIS, L., *Oxydations-reductions Potentiale*, 1933. Berlin: Jules Springer.
16. "Free radicals as intermediate steps in the oxidation of organic compounds", *Ann. New York Acad. Sci.*, 1940, **40**, 37.
17. BALL, E. G., "Role of flavoproteins in biological oxidations", *Symposia on Quant. Biol.*, 1939, **7**, 100.
18. SAUNDERS, J. C., LOURIE, I., and CHIPKIEWICZ, H., "Biopsychiatry: Some Alterations of the Intermediary Metabolism in Psychoses". Presented at the Sixth Bahamas Medical Conference, Nassau, Bahamas. 8–14 December, 1958.
19. AKERFELDT, S., "Oxidation of N, N-dimethyl paraphenylene diamine by serum from patients with mental disease", *Science*, 1957, **125**, 117.
20. SAUNDERS, J. C., and CHIPKIEWICZ, H., "Studies of ceruloplasmin in schizophrenics and normal controls", *J. of Clin. and Exp. Psychopath.*, 1959, **20**, No. 1, p. 7.
21. McDONALD, R. K., *Ceruloplasmin and Schizophrenia. Chemical Concepts of Psychosis*, 1958. New York: McDowell, Obolensky, p. 230.
22. NIELSEN, L. O., and LEHNINGER, A. C., "Phosphorylation coupled to the oxidation of ferrocycytochrome c", *J. Biol. Chem.*, 1955, **215**, 555.
23. COHEN, H. P., and COHEN, M. M., "Depression of central nervous system activity", *Psychopharmacology-Progress in Neurobiology*: 1958, 3. New York: Hueber-Harper, p. 47.
24. ZATMAN, L. J., KAPLAN, N. O., COLOWICK, S. P., and CIOTTI, M. M., "The isolation and properties of the isonicotinic acid hydrazide analogue of diphosphopyridine nucleotide", *J. Biol. Chem.*, 1954, **209**, 467.
25. WINDER, F. G., and DENNENY, J. M., "Metal-catalyzed auto-oxidation of isoniazid", *Biochem. J.*, 1959, **73**, No. 3, 500.
26. LAGNADO, J. R., and SOURKES, T. L., "Inhibition of amine oxidase by metal ions and by sulphydryl compounds", *Canad. J. Biochem. and Physiol.*, 1956, **34**, 1185.
27. *Idem*, and SOURKES, T. L., "Enzymatic reduction of tetrazolium salts by amines", *Canad. J. Biochem. and Physiol.*, 1956, **34**, 1095.
28. KARREMAN, G., ISENBERG, I., and SZENT-GYORGYI, A., "On the mechanism of action of chlorpromazine", *Science*, 1959, **130**, 1191.

29. HENDERSON, L. M., WEINSTOCK, I. M., and RAMASARMA, G. B., "Effect of deficiency of B vitamins on the metabolism of tryptophan by the rat", *J. Biol. Chem.*, 1951, **189**, 19.
30. CHARCONNET-HARDING, F., DALGLIESH, C. E., and NEUBERGER, A., "The relation between riboflavin and tryptophan metabolism studied in the rat", *Biochem. J.*, 1953, **53**, 513.
31. KUROKAWA, M., NARUSE, H., KATO, M., YAKE, T., and HABA, R., "Action of chlorpromazine on the respiratory system of guinea-pig brain cell-free preparations", *Folia Psychiatrica et Neurologica Japonica*, 1957, **10**, 354.
32. LEHNINGER, A. L., "Phosphorylation coupled to oxidation of dihydrodiphosphopyridine nucleotide", *J. Biol. Chem.*, 1951, **190**, 345.
33. BURTON, R. M., KAPLAN, N. O., GOLDIN, A., LEITENBERG, M., SODD, M. A., and HUMPHREYS, S. R., "Effects of reserpine and promazine on DPN synthesis in liver", *Science*, 1958, **127**, 30.
34. LINDAN, O., QUASTEL, J. H., and SVED, S., "Biochemical studies of chlorpromazine. II", *Canad. J. Biochem. Physiol.*, 1957, **35**, 1145.
35. SAUNDERS, J. C., "Round Table: Clinical clues as to mode of action of the ataractic drugs", *The Psychiatric Quarterly*, 1958, **32**, 64.
36. *Idem*, "Discussion: Chemical Concepts of Psychosis", 1958. New York: McDowell, Obolensky, p. 437.
37. LUNDIGARDH, H., "Salts and respiration", *Nature*, 1960, **185**, 70.

MOUSTACHES*

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THESE studies of association between types of moustache and personality features were made during World War II in two officer-selection Boards (U.K., Male). The Boards contained Senior Officers (who interviewed each candidate), "Military Testing Officers" (who graded on practical tests given over three days residence), and a psychiatrist. A "Psychological Testing Team" conducted written tests. Board results were expressed as "pass" or "fail" or "referred back". The ratings upwards of "pass" were DD, D, C, B and A. Men considered too unadaptable for officer grade (and so "failing"), but likely to become or to remain good N.C.O.s, were (for the information of the Board) specially noted as "fail: N.C.O.". The "referred back" men were rated NY ("Not Yet"—chance of further maturity). In this paper "pass" and "fail" are placed in inverted commas to emphasize that ratings had reference to selection for one rôle only—that of Commissioned Officer.

The cut of a man's moustache could of course never be of influence in the Board decision. The investigation here presented was an outcome of a personal curiosity, and whilst it took opportunity of the existence of the very extensive personality assessments, it was never in any way connected with the sternly practical task of the Boards.

Since initially it was quite unknown what, if any, personal characteristics might be linked to moustaches, it happened that a good deal of the information collected was on later analysis found to be non-significant. No further allusion will herein be made to such work. From the nature of wartime, some material became mislaid, and some figures which might have been of value are lost (as, for example, the "fail: N.C.O." rates for the main study).

All occurring moustaches were grouped under five headings:

"Trimmed"	...	Flatly covering most of lip.
"Divided"	...	Small group of hairs each side.
"Clipped"	...	Toothbrush shape.
"Line"	...	Very narrow strip.
"Bushy"	...	"Old Bill", "Handlebars", or lesser hybrids.

PRELIMINARY STUDIES

Prior to the main study, comparisons were made of the first 100 moustached men with a random 100 clean shaven. The "pass" rate for these moustached was 19 per cent.; for these clean shaven 21 per cent. The average intelligence levels were equal ("Officer Intelligence Rating", 5.3 for moustached, 5.5 for clean shaven). There were no significant differences in intelligence between the five moustache groups. Rates of "pass" and "fail" for

* War Office permission has been given for the publication of this paper.

these 100 moustached, and incidence of "fail; N.C.O." are shown in Table 1. (It is to be understood that the "fail; N.C.O." are, of course, also included in the total "fails".)

TABLE I

Group			"pass"	"fails" (and N.Y.)	"fail; N.C.O."	Totals
Trimmed	..	..	21%	79%	41%	39
Divided	..	..	25%	75%	33%	12
Clipped	..	..	Nil%	100%	78%	14
Line	..	..	21%	79%	46%	24
Bushy	..	..	27%	73%	27%	11
						100

Two points became evident. First, every man with a “clipped” had “failed” (none were NY); second, this same group yielded relatively many “fail; N.C.O.” (i.e. men being or expected to become good N.C.O.s). The preliminary study having thus shown up the “clipped” group as distinctive, it followed that in the main study these men were often being compared with those of other groups. Since all “clipped” turned out to have “failed” (in the main study also), such comparisons properly had to be made with “fail” candidates of these other groups. This was the main reason why much of the work of the main study was based on “fail” candidates.

Other pilot studies gave added reasons for this concentration upon "fails". It appeared that the distribution of "pass" gradings was much the same in each of the four moustached groups other than the "clipped" (Table II). The distribution of "pass" gradings was similar amongst both moustached and clean-shaven (Table III). These two findings supported the view that in the main study detailed work on the less distinctive "passes" would be relatively unfruitful.

TABLE II

			"Passes"				Totals
Group			B.	C.	D.	DD.	
Trimmed	..	..	Nil	8	16	18	42
Divided	..	..	Nil	Nil	8	2	7
Clipped	..	..	Nil	Nil	Nil	Nil	Nil
Line	..	..	2	Nil	4	4	10
Bushy	..	..	1	2	7	3	13
							72

TABLE III

		"Passes"					
		B.	C.	D.	DD.	NY.	Totals
Moustached	..	2	2	6	9	5	24
Cleanshaven	..	1	4	9	7	9	30
							54

MAIN STUDY

The main study covered 400 consecutive moustached candidates at one Board, 173 at another. Figures for whole intake relate to the period of some months occupied by the 400 study. For this intake the "pass" rate was 23 per cent.

The five moustached groups will now be considered separately.

"TRIMMED"

The men with "trimmed" moustaches produced selection results essentially similar to the clean shaven. The "trimmed" group seemed to comprise a spread of personality varieties comparable with that for the mass of all candidates.

"DIVIDED"

The men with "divided" moustaches proved an inadequately defined group. Detail figures were often not extracted and no special conclusions were warrantable.

"CLIPPED"

Figures for the five moustached groups in the 400 appear at Table IV.

TABLE IV

Group		"pass"	"fail"	NY.	Totals
Trimmed	..	22% (42)	73% (140)	5% (10)	192 (48%)
Divided	..	25% (7)	68% (19)	7% (2)	28 (7%)
Clipped	..	Nil% (Nil)	100% (31)	Nil% (Nil)	31 (8%)
Line	..	11% (10)	88% (80)	1% (1)	91 (23%)
Bushy	..	22% (13)	71% (41)	7% (4)	58 (14%)
All moustached		18% (72)			400 (100%)

The 369 moustached left after excluding the "clipped" produced almost the same proportion of "passes" (20 per cent.) as did the whole intake (23 per cent.), with probably a range of ratings similar to that in the intake (Tables II and III); but not one "clipped" candidate passed (even at lowest grading)—evidently this last group comprised a far less extensive range of personality varieties than did the other moustached persons.

The figures of Table V refer to 173 consecutive moustached men additional to the 400. These observations were, on request, made by another observer at another selection Board (U.K., Male).

TABLE V

Group		"pass"	"fail"	NY.	Totals
Trimmed	..	27% (17)	70% (43)	3% (2)	62 (36%)
Divided	..	21% (3)	43% (6)	36% (5)	14 (9%)
Clipped	..	Nil% (Nil)	100% (10)	Nil% (Nil)	10 (6%)
Line	..	30% (22)	57% (43)	14% (10)	75 (44%)
Bushy	..	50% (6)	50% (6)	Nil% (Nil)	12 (6%)
All moustached		22% (48)			173 (100%)

The criteria adopted by this other observer as to what arrangement of bristle should constitute a "bushy" must have been somewhat different from our own, this title being accorded to only 12 of the 173 (6 per cent) as compared with 58 in the 400 (14 per cent.), his grouping here tending to inclusion in "trimmed". "Line" (44 per cent.) had been by him more generously interpreted: ours (23 per cent.) were very thin, our grouping here tending to inclusion in "trimmed". Fortunately the "clipped" moustache ("Toothbrush" or "Hitler") was relatively little capable of confusion with any other variety (his 6 per cent., ours 8 per cent.). The total "failure" of the "clipped" group thus was confirmed in this independent survey. Board "pass" rates varied slightly, chiefly according to what type of service was being selected for at any particular juncture. The difference in the two batches between the "pass" rates for the moustached men, 18 per cent. (in the 400) and 22 per cent. (in the 173), would be a reflection of differences in the overall "pass" rates prevailing at the time in the two Boards, but this would not significantly affect the distributions of the figures for the moustached groups within the two Boards.

Returning to the 400, the educational backgrounds of a run of 27 of the "clipped" group, compared with a run of 34 "trimmed" "fails" ("trimmed" chosen as being the most variegated group) appear at Table VI.

TABLE VI

Group "fails"		Sec/Pub Education	Elementary Education	Totals
Clipped		15	12	27
Trimmed		25	9	34

The two groups had "occupational level" gradings, which when averaged were practically alike ("clipped" at "3·9", "trimmed" at "3·8"). In civil life "clipped" men had overall done no better and no worse than other "fail" men (and plenty of "fails" both cleanshaven and moustached were described as "Company Directors" and so forth); but they had perhaps been more assertive, since they relatively more often had started from only elementary education.

The military occupations of the "clipped" moustached were investigated. The "trimmed" group was again taken as a standard for comparison. With "clipped" men, out of a sample run of 28 "fails", 5 were regular soldiers and 7 others were Instructors. With "trimmed" men, out of a run of 34 "fails" one was a "regular" and one other an Instructor. Thus the "clipped" group showed 12 out of 28, the "trimmed" only 2 out of 34; of men perhaps more likely to be of relatively rigid and authoritarian ("N.C.O.") disposition. This accords with the high rate of "fail; N.C.O." within the "clipped" group as evidenced in Table I—78 per cent., as compared with 41 per cent. for "trimmed" and with 38 per cent. mean for all groups excluding "clipped".

The "fails" of all moustache groups in the 400 were scrutinized for tendency for any particular constellation of personality features to be evident beyond the broader personality background—what might be called a "façade". Three such "façades" were considered reasonably capable of extraction:

- X. Disruptive of contact; unpleasant; antagonistic.
- Y. Unconvincing and self-justifying.
- Z. Melodramatic and sycophantic.

The distribution of "façades" in the moustached groups of "fails" appears in Table VII.

TABLE VII
"Façades"

Group	Present	Strongly Marked	X	Y	Z	Totals
Trimmed	45% (15)	21% (7)	12% (4)	21% (7)	12% (4)	34
Divided	Not recorded					
Clipped	73% (28)	63% (19)	63% (19)	23% (7)	7% (2)	30
Line	47% (14)	13% (4)	10% (3)	17% (5)	20% (6)	30
Bushy	63% (19)	40% (12)	20% (6)	20% (6)	23% (7)	30

The men with a "clipped" were relatively more prone to have a "set" of personality features, which "façade" tended with them to be strongly marked, and "façade X" was strikingly predominant within the "clipped" group. From Table IV the conclusion had already been drawn that the "clipped" group contained a much less wide range of personality varieties than with the other moustached men; it now also appeared from these findings on "façades" that the "clipped" men were much more like to each other than were the "fail" members of any other moustache group.

In the 400, the chances of having any one type of moustache were approximately one in two for a "trimmed", one in four for a "line", one in eight for a "bushy", one in sixteen for a "clipped" (figures for "divided" of uncertain validity) (Table IV). The "clipped" was popular with a more narrow range of individuals than were the other moustaches.

Many trains of evidence thus led on to the conclusions about those candidates who bore "clipped" moustaches, particularly when compared with "fail" men wearing other moustaches. The "clipped" men had no lack of drive, were of adequate intelligence and not inclined to self-indulgence or over much self-concern—but they had not been selected to go on to officer training because they were too limited in imagination, too little appreciative of the views of others, and unable sufficiently to bind together groups of men because of their liability to create rather than to disperse interpersonal tensions. Like their moustaches, so tended these men—faintly rebellious, energetic but prickly; precise to a fault, self limited in looking to either side, not offering concessions; conventionalized members of a group all much like unto themselves, in fair measure self-admirers and poor in aesthetic sense. They tended to be at once disciplining to near ruthlessness, and disciplined to near self-mutilation. In a setting of vigour and determination, the control of this inner imbalance was maintained by so much rigidity as to diminish the personality.

The glass of fashion might be expected to influence styling, and similar personality features could in different times be associated with different moustaches. During World War I, instructor N.C.O.s at Guards dépôts were unaffectionately known as "drill pigs". A short waxed sharp-pointed moustache of fearsome correctness was practically an item of their equipment. No "waxed", short or long, appeared in this 400, and indeed it is nowadays a rare moustache. It is a fair guess that some of the "clipped" men, had they lived in earlier times, would have tended to wear a "short waxed". It is possible that the incidence of moustaches, or of moustache types, was different from the general population in these men coming forward as prospective officers, but this would not invalidate conclusions as to personality trends linked to moustache varieties.

"LINE"

Candidates were all given a questionnaire on medical history. Many men made entries under only one or two headings, spending relatively less time on this questionnaire than on other documents also given to be completed; but by contrast other candidates would frequently add expanded details of illness. All candidates were broadly of equivalent health, but there was extreme variability in their degrees of "health consciousness".

For this study each of the answers on the medical questionnaire was rated as an "entry"; counts of the entries for 118 "fails" are shown in Table VIII. (The last column shows entries computed for convenience as if they had all referred to 30 "fails" of each group.)

TABLE VIII

Group	Totalled Entries		Totals	Entries "reduced" to 30 "fails"	
Trimmed	..	..	114	35	98
Divided	..	..	Not recorded		
Clipped	..	..	109	32	102
Line	..	..	144	30	144
Bushy	..	..	77	21	110

The "line" men who "failed" had relatively loaded questionnaires. The excess of entries with the "line" group over any other group (among which the totals of entries were about equal) was around 40 per cent.

Of references to other than the reasonably ordinary medical incidents of life, 33 "trimmed" "fails" produced 3, 21 "bushy" "fails" made 3, 32 "clipped" men made 4, whilst 30 "line" "fails" showed 80. Thus not only did the "line" "fail" men give relatively excessive entries, but they also expanded a much greater proportion of their writing in forms strongly suggesting a beyond average interest in their personal health.

With some runs of "fail" moustached candidates the medical questionnaires were scrutinized for references to emotional illness. Thirty-five "trimmed" "fails" made no reference to emotional illness. Twenty-one "bushy" "fails" made one reference ("nervous as a child"), 32 "clipped" made one ("nervous breakdown"), but 30 "line" "fails" made six (two "nervous breakdown", one "depression", one "stomach nerves", one "nervous debility" and one "insomnia").

Findings to be displayed at Table IX show a high rate of "hysteria" as a trend within the "line" "fail" group (as would be expected with their strong "health consciousness"); there is also demonstrated a high rate of "hedonism". Neither feature with the "line" group was linked to any striking demonstrativeness of personality (or "façade") (Table VII).

With the 400, 11 per cent. of the "line" bearers "passed" (Table IV); but with the 173, 30 per cent. of those grouped as "line" "passed" (Table V). It had been shown to be probable that the "lines" of the 400 had been so grouped only if considerably more sharply cut than those of the 173. There was thus a suggestion that exaggerated thinning of "line" moustaches was, broadly, associated with lessened leader effectiveness.

The rate of "pass" for the "line" group tended low (at 11 per cent.) as compared with the "trimmed" 22 per cent., "divided" 25 per cent. and "bushy" 22 per cent. (Table IV)—an effect which it appeared was probably largely

due to the proneness towards undue self-regard amongst men cultivating very thin moustaches.

BUSHY

The numbers of times "hedonism" and "hysteria" (in practically those terms as such) had been used in the descriptions derived from the men's written work appear at Table IX.

TABLE IX

Group			"Hedonism"	"Hysteria"	Totals ("fails")
Trimmed	..	..	Nil	1	34
Divided	..	..		Not recorded	
Clipped	..	..	1	1	30
Line	..	..	7	5	30
Bushy	..	..	6	6	30

With the "trimmed" men most "failures" were due to lack of force and colour—any "hedonism" or "hysteria" would thus not be noticeable as such beyond other characteristics. Men bearing "clipped" moustaches would not appear likely to have been prone to undue self-indulgence or self-concern, and it was not surprising to find within this group no more on the score of "hedonism" and "hysteria" than with the "trimmed" "fails". "Hedonism" appeared associated with the "bushy" moustaches much as it did with the "line". The observed very marked "health consciousness" of the "line" group was doubtless the main reason for their relatively frequent description as showing "hysteria". The "bushy" persons were, however, not given to "health consciousness" and thus their leaning to "hysteria" must have come to expression through other channels. "Hysteria" could have meant emphasis on self-display, as well as, or more than, on self-concern. The "clipped" was outstandingly linked to high "façade" incidence (Table VII), but this excess over the other groups was wholly due to high incidence of "façade" "X" (Antagonistic); "façade" "Y" (Self-justifying) being with them at an incidence comparable to other groups and "façade" "Z" (Melodramatic) at the lowest incidence of any group. With the ("fail") "bushy", the incidence of "façades" was also high at 63 per cent. (as compared with the "trimmed" at 45 per cent. and the "line" at 47 per cent.). Again, with the "bushy" the intensity of "façades" (in "fails") was high (40 per cent. "strong" as compared with 23 per cent. for "trimmed" and 13 per cent. for "line"). Unlike "clipped", however, the distribution of the three "façades" "X", "Y" and "Z", was spread evenly amongst the "bushy" "fails". It emerges, therefore, that the "bushy" "fails" were proportionately more prone than other groups taken together to exhibit façades of "Y" and "Z" types—that is, to have relative proneness to self-display, which disposition was presumably associated with their high rate of description under "hysteria". Probably many of the "bushy" "pass" candidates in the 400 had been of honest exuberance, the overall "pass" rate (22 per cent.) being much as that for the whole intake (23 per cent.).

With the 173 moustached men at the other Board, the "pass" rate for the "bushy" group was as high as 50 per cent. Table V and its analysis had showed that criteria for selection of this particular "bushy" group had been relatively stringent. There was thus indication that, broadly, increased "bushiness" of moustache amongst men suitable for officer training was associated with increased leader effectiveness.

SUMMARY

1. Five hundred and seventy-three moustached candidates at two officer selection Boards were studied.
2. The moustaches were placed in five groups: "trimmed", "divided", "clipped", "line" and "bushy".
3. Men with "trimmed" moustaches showed no significant differences from the clean shaven.
4. The "clipped" moustache group was found associated with a distinctive type of personality. No man with this moustache had "passed" the Boards.
5. The personality features within the "clipped" group did appear to have been reflected in the cut of this moustache.
6. Men bearing "line" moustaches "passed" at half the rate for the whole intake; those who "failed" displayed "health consciousness" far more than "fails" of any other group.
7. The "bushy" moustached men "passed" at a rate similar to the whole intake; those who "failed" tended to self-indulgence and self-display.

I have lost touch with the two "testing team" sergeants, Rhodes and Dickie, who worked with me. I hope that they may come to hear of this completed study and of my thanks for their devoted labour.

A NOTE ON "DISTANCE CONSTANCY IN SCHIZOPHRENIC PATIENTS"

By

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WECKOWICZ, Sommer and Hall (14) in a paper on the size and distance perception of schizophrenic patients relate their results to a theory of the normal perception of size and distance. This paper analyses more fully some aspects of their results, since they provide evidence *against* the theory of perception which Weckowicz *et al.* accept.

Weckowicz's paper (as it will be termed) includes the following account of the theory concerned:

"It (*size constancy*) depends on an ability to take into account the distance of the perceived object. A retinal image of the same size can be produced either by a small object at a near distance or a large object at a far distance, so there is a reciprocity between the perceived distance and perceived size." This hypothesis concerning the relationship between perceived size, s , and perceived distance, d , has been termed the Invariance Hypothesis, and is most clearly expressed by the formula $s/d = I$ (the retinal image size). Gilinsky (4) has used this equation as a basic axiom in her system, in which a formula is derived for perceived distance in terms of the actual distance, D , and a constant, A , which represents the hypothetical limit of perceived distance:

$$d = \frac{A \cdot D}{A + D}$$

Weckowicz interprets his results both in terms of the Invariance Hypothesis, and in terms of this concept of a limited subjective space. Now the Invariance Hypothesis is commonly accepted as confirmed, but nevertheless there is much evidence which severely restricts its sphere of validity. Indeed, two of the authors mentioned in Weckowicz's paper, Ittelson (8) and Brunswik (2), have themselves reported experiments in which predictions based on the Invariance Hypothesis were not confirmed. Amongst other investigators reporting contrary results are Gruber (5), Heinemann *et al.* (6), and Hermans (7). Smith (12) also has clearly shown the inadequacies of Gilinsky's formula. Briefly, these authors show that if the size of an object is, say, underestimated, then the distance of the object will *not* necessarily be underestimated also; indeed in some circumstances the distance tends to be overestimated (1, 10, 11). Similarly, if an observer judges an object to be larger than do most observers, then he does not necessarily also judge the distance to be greater than most. As for Gilinsky's formula for perceived distance, experiments show that in many cases estimated distance is related to actual distance in a linear fashion, rather than as the negatively accelerating function in the formula (3).

REAPPRAISAL OF WECKOWICZ'S RESULTS

In Weckowicz's investigation, each subject was required to say when a cart moving away from him appeared to be one-yard away, a further one-yard away, and so on, until twenty successive one-yard judgments had been made. A normal and a schizophrenic group were studied. The median distances judged successively to be equal to one-yard are given in Table II of Weckowicz's paper. Gilinsky's formula can be tested by these data, since the predicted relationship between an increment of actual distance, ΔD , required for a unit increase in perceived distance, and the total perceived distance, d , is given by differentiating Gilinsky's equation:

$$\Delta D = \frac{A^2}{(A - d)^2}$$

Thus a complex relationship between perceived distance and the increment of actual distance, ΔD , is predicted; specifically, ΔD is considered to be a positively accelerating function of d . In fact, however, Weckowicz's results show a linear, rather than a positively accelerating trend. The product-moment correlation between the two variables (assuming that the successive perceived yards summate) is 0.99 for the schizophrenic patients and 0.97 for the normals: $N=20$, and therefore both correlations are highly significant. In other words, the increment of distance appearing equal to one-yard increases in proportion to the perceived distance under the particular experimental conditions, and this linear trend can account for over 94 per cent. of the variance between the median distance judgments. The discrepancy between these results and Gilinsky's formula may be illustrated in another way. The constant, A , which is supposed to be the limit of perceived under the experimental conditions, may be evaluated using Gilinsky's formula, if we assume that the successive median estimates may be summed. The calculated values of A for $d=1, 10$, and 20 yards are $A=8, 23$, and 30 yards respectively for the schizophrenic group; and $A=19, 29$, and 43 yards for the normal group. A different set of values for A may be calculated from the differential equation, without summing the estimates. It is clear that the calculated values for A are far from equal, and that therefore the concept of a limit to perceived distance, as defined by Gilinsky's formula, is untenable as an explanation of the results.

The data from Table III of Weckowicz's paper are also in clear disagreement with Gilinsky's prediction. This table gives the median increments of distance appearing equal to one-yard for different values of the *actual* distance from which the judgments were made. In this case, the predicted relationship is obtained by stating the differential of Gilinsky's formula in terms of the actual distance, D :

$$\Delta D = \frac{(D + A)^2}{A^2}$$

This is also a positively accelerating function, and again this prediction is not confirmed. For the empirical relationship between ΔD and D is not a positively accelerating function for either group. The relationship is linear for the schizophrenic group, with a product-moment correlation of 0.99 ($N=29$, and therefore highly significant); while the relationship for the normal group shows a clear *negatively* accelerating trend.

Weckowicz *et al.* report, in addition, two correlations between "size constancy" and "distance constancy". The former measure refers to the perceived size of a rod at 7.5 m. distance and at 15 m. distance, indicated by the

observer's adjustment of another rod in front of him. It is assumed, presumably, that the perceived size of this near rod is equal to its actual size, so that its setting gives the equal perceived size of the further object directly. "Distance constancy" refers to the actual distance reported by the observer as eight successive one-yard intervals, and sixteen one-yard intervals respectively. The size estimates were obtained within four weeks of the distance estimates, and are reported in detail in a separate paper by Weckowicz (13). The inter-subject correlations between the two perceptual variables, for the schizophrenic group, are stated to be "in the direction predicted by the theory". Assuming that the theory referred to is the Invariance Hypothesis, it must be pointed out that this Hypothesis predicts a high, *linear* correlation between perceived size and perceived distance, with visual angle constant: and the empirical correlations reported by Weckowicz are neither large nor linear. Ordinal correlations for 7.5 m. distance and 15 m. distance were respectively $\rho=0.47$ and $\rho=0.39$. But in any case, the Invariance Hypothesis cannot make *any* prediction with regard to these particular empirical correlations, since they do not fulfil the conditions necessary for the application of the Hypothesis. In the first place, the size and distance judgments were made with different stimulus-objects (rods and a cart, respectively), with different visual projection sizes. Moreover, the "distance constancy" measure used by Weckowicz is inappropriate, since it is not equivalent to perceived distance. A more appropriate measure would have been the number of perceived one-yard intervals within the actual distance concerned (7.5 m. or 15 m.), using the summed increments.

The empirical correlations should not, then, be regarded as evidence confirming the Invariance Hypothesis. Indeed, there is no report in the literature (known to the writer) of a positive, linear, inter-subject correlation between perceived size and perceived distance, with stimulus conditions constant. However, if the correlations obtained by Weckowicz cannot be accounted for in terms of the Invariance Hypothesis, they require some other explanation. Weckowicz's own observations suggest a simple one. Since schizophrenia tends to involve a deterioration in the ability to judge both size and distance accurately, and since it is reasonable to suppose that the *degree* of schizophrenic deterioration should be reflected in both size and distance judgments, some correlation between the two indices is to be expected for the schizophrenic group. Unfortunately, control data for the normals were not obtained in this respect. It is suggested, then, that the correlations obtained by Weckowicz support his hypothesis that schizophrenia involves the deterioration of perceptual functions, but that this does not imply that perceived size and distance are necessarily correlated in a positive linear fashion for normal observers.

A further aspect of the results supports this view. The normal group tended to give slightly greater size judgments for objects at 15 m. distance than at 7.5 m. distance (13). This "overconstancy" has been observed by other investigators such as Jenkin (9). But when estimating distance, the normal group tended to *underestimate* the distance far more at 16 yards than at 8 yards.

The discussion may be summarized by observing that Weckowicz's legitimate conclusions with regard to some of the possible effects of schizophrenia should not be confounded by relating them to a limited and speculative theory of size and distance perception.

SUMMARY

Weckowicz *et al.* have shown that schizophrenia tends to involve impairment in the ability to make perceptual judgments. The present paper denies,

however, that Weckowicz's results support the Invariance Hypothesis or Gilinsky's theory of size and distance perception. Indeed, some aspects of the results are shown to be incompatible with these theories.

REFERENCES

1. BORING, E. G., *Amer. J. Phys.*, 1946, **14**, 99.
2. BRUNSWIK, E., *Psychol. Monogr.*, 1944, **56**, No. 254.
3. GIBSON, E. J., BERGMAN, R., and PURDY, J., *J. Exp. Psychol.*, 1955, **50**, 97.
4. GILINSKY, A. S., *Psychol. Rev.*, 1951, **58**, 460.
5. GRUBER, H. E., *Amer. J. Psychol.*, 1954, **67**, 411.
6. HEINEMANN, E. G., TULVING, E., and NACHMIAS, J., *Amer. J. Psychol.*, 1959, **72**, 32.
7. HERMANS, T. G., *J. Exp. Psychol.*, 1954, **48**, 204.
8. ITTELSON, W. H., and KILPATRICK, F. P., in KILPATRICK, F. P. (Ed.), *Human Behaviour from the Transactional Point of View*, 1952, Institute for Associated Research, New Hampshire.
9. JENKIN, N., *Amer. J. Psychol.*, 1959, **72**, 345.
10. MAIER, N. R., *Amer. J. Psychol.*, 1929, **41**, 291.
11. MILES, P. W., *Amer. J. Ophthal.*, 1951, **34**, 1543.
12. SMITH, W. M., *Psychol. Rev.*, 1952, **59**, 239.
13. WECKOWICZ, T. E., *J. Ment. Sci.*, 1957, **103**, 432.
14. *Idem*, SOMMER, R., and HALL, R., *J. Ment. Sci.*, 1958, **104**, 1174.

VERBAL ABSTRACTION IN PSYCHIATRIC ILLNESS: ASSAY OF IMPAIRMENT UTILIZING PROVERBS*

By

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BACKGROUND

As far as published records show, Europeans used proverbs for evaluating mental processes some years before they were similarly used in America. In 1906, Finckh (20) published his research concerning the use of proverbs in intelligence testing, which is still cited most frequently in Germany and considered the foundational research in this field. In 1907, Bühler (13) published his extended article dealing with the problems of studying the thinking process. He pointed out the value of proverbs because they were interesting while at the same time demanding all the psychic energy of the subject. In 1920, Achilles (1) used familiar and not so familiar proverbs in memory studies, testing children, adults and "insane patients". In 1923, Piaget (39) referred to the use of proverbs for the study of thinking. Also in 1923, Ziehen (53) described the use of proverbs for testing the mentally gifted; both normal and clinical cases. In 1927, Bronner (11) reported a proverbs test being used in the United States. Thurstone's test consisted of two sets of 20 proverbs each. The proverbs in one set had the same meanings as those in the second set, e.g.

Fine feathers do not make fine birds
Clothes cover character.

The test was scored by the number of correct matchings, norms for which were published by Shimberg and Lowe (11). In the 1937 Stanford Revision of the Binet Scale, Terman and Merrill (48) used proverbs at the adult and superior adult levels.† The following are examples:

Adult: A burned child avoids the fire.
 He who would eat the kernel must crack the nut.
 A drowning man will catch at a straw.

Sup. Adult: A bird in the hand is worth two in the bush.
 You can't make a silk purse out of a sow's ear.

In 1940 Wegrocki (51) called attention to the specific use of proverbs as a measure of generalizing ability. In 1942, Loeb (31) pointed out the function of proverbs in the intellectual development of primitive peoples. In 1951, Hall (25) reported the use of proverbs in measuring impairment of abstraction

* A paper presented at the 16th International Congress of Psychology at Bonn, Germany, 5 August, 1960.

† In a personal communication of 21 July, 1960, Dr Maud A. Merrill indicated that Terman considered proverbs for the 1916 scale, but apparently none proved as acceptable as fables.

in schizophrenia. The new Wechsler Adult Intelligence Scale, of 1955, uses two proverbs at the top level of the Comprehension subtest; viz.,

Shallow brooks are noisy
One swallow doesn't make a summer.

They are scored on a three-point scale which represents degrees of generalization or abstraction.

The real impetus to the use of proverbs in psychiatric evaluation was provided by Benjamin, whose list of proverbs was included in the Wells and Ruesch (50) Mental Examiners Handbook, published in 1942. His method of using proverbs had been outlined in a symposium at the American Psychiatric Association Convention in 1939 which was later published under the title *Language and Thought in Schizophrenia* (8). The impact of Benjamin's work was so great that if you ask an American psychiatrist about the use of proverbs he is apt to say, "Oh, we've always used proverbs in mental status examinations".

THE DEVELOPMENT OF FORMAL TESTS

Baumgarten-Tramer developed a proverbs test which has been widely used in Europe. It has been described in Stern's (47) *Handbook of Clinical Psychology*, in her own book (3) and in the American journal, *Personnel Psychology* (2). The "Sprüchetest" consists of a collection of 240 proverbs concerning human labour and social relationships. Many individual problems in these fields have been included; e.g., the effect of work, social status of the vocations, work techniques, remuneration, fairness, suitable conduct, existing social conditions, etc. The examinee is to select eight proverbs which he considers correct and eight which he considers incorrect. In a personal communication she characterizes her test as follows:

"I applied the test to 92 workers in a Swiss concern and required them to answer the following questions in writing:

1. Which proverbs do you regard as correct and why?
2. Which proverbs do you regard as false and why?

I do not use the test to measure *intelligence*, and make no attempt to determine whether it has been understood or not. For me, it is more important to know in what various ways the test can be understood by normal individuals and it is thus a qualitative diagnosis of personality" (4).

After some five years of development, my own test (21, 22) was published in 1956, with a manual, scoring materials and a clinical manual for psychiatric use. The clinical form of the test consists of 3 parallel forms of 12 proverbs each scaled for difficulty. A multiple-choice form of 40 proverbs is suitable for group administration. The test may be scored for abstractness, concreteness or a combined index of those two scores. The standardizing sample consisted of over 1,300 students and military personnel. Clinical norms are now available for chronic schizophrenic, organic and paranoid schizophrenic patients. Samples of easy and difficult proverbs from this test are:

Easy: Rome was not built in a day.
 Don't judge a book by its cover.
 The sun shines upon all alike.

Difficult: The more cost, the more honour.
Crooked sticks make a straight fire.
The hot coal burns, the cold one blackens.

In 1958, Bass (5) of Louisiana State University, completed a Famous Sayings Test which contains 131 generalities, mainly famous sayings, proverbs, adages and aphorisms. This test is intended primarily for rapid vocational assessment. The approach is somewhat like Baumgarten-Tramer, in that the subject responds by indicating agreement, disagreement or uncertainty. The analysis of results is more objective, however, since keys are provided for vocationally important aspects of personality, viz., hostility, fear of failure, social acquiescence and conventional mores. The test has been published and its manual provides norms for various educational, regional and vocational groupings in the United States based on 2,000 cases examined.

Several Scandinavian psychologists are working with proverbs. Alan Mogensen of the University of Aarhus in Risskov, Denmark, is developing a proverbs test. Associated with him is Lise Østergaard, Chief Psychologist at the Rigshospitalet in Copenhagen. Erik Lundgren of Oslo is constructing and trying out tests for military selection and personnel work. Ingmar Dureman of Upsala, Sweden, is building a test for psychiatric use in the Klinik where he is Chief Psychologist.

In his work Mogensen is in the midst of a number of approaches, being so swamped in fact that he despairs of publishing and takes cover under the proverb "Great bodies move slowly". He has clinical *and* multiple-choice forms with abstract and concrete scoring categories. He is comparing the performance of adults and children. To me, his most interesting approach is the comparison of self-chosen procedures such as "skipping many items" versus "skipping few or no items". He concludes that this particular procedure indicates a characterological trait, and one is reminded of Baumgarten-Tramer's work. Some samples from Mogensen's Clinical Form are the following:

Many creeks make a river.
Don't cry over spilt milk.
Little strokes fell great oaks.
Don't shoot sparrows with a cannon.
People who live in glass houses should not throw stones.

The fact that all of these proverbs are familiar ones to me, and the fact that Mogensen found 22 of the 40 used in my multiple-choice test familiar to him, attest to the universality of the common folk wisdom of the proverb.

Work is now going forward in several other countries to construct proverbs tests. Devoto (17) at the University of Florence is building a test for psychiatric use. Choynowski (14) of the Polish Academy of Sciences Psychometric Laboratory has developed six experimental scales of 12 proverbs each for individual use with mental patients. Kaufman, working with Becker (6, 7) at the University of Illinois is attempting to develop two parallel forms based on the scoring system which Becker has devised. Her goal is to measure variations in degree of thinking pathology as a function of experimental variations in the nature of interpersonal relationships.

There are a number of tests and systems of scoring general lists of proverbs which have been developed by research scientists to meet the demands of a specific problem being studied. These will be mentioned in the following summary of published research studies which have been completed in recent years.

SUMMARY OF PUBLISHED RESEARCH

Two studies have reported very carefully worked out systems for quantifying responses to proverbs. Richardson and Church (42) at Vassar College scored proverb comprehension along three dimensions: Specific-General, Literal-Figurative and Physiognomic-Articulated. Becker (6) at the University of Illinois developed a scoring system which enabled him to assign weights from one to six for each response in terms of its "abstractness".

Since a high relationship between intelligence and proverbs scores is known to exist, this factor must be controlled and utilized in research studies. One interesting example of exploiting the relationship between intelligence and measures of abstraction derived from proverbs interpretation is reported by Becker (6). He found that a discrepancy score based on the standard-score difference between a vocabulary estimate of verbal intelligence and a proverbs score was his most sensitive index of thinking disturbance. Some such method of deriving measures of impairment from proverbs scores seems to offer exceptional promise for research purposes.

Rabin and Broida (40) in 1948, at New Hampshire State Hospital, investigated the value of analysing the content of selected proverbs. In 1951, Hall (25) in Great Britain used proverbs in his work on impairment of abstraction in schizophrenia. Payne, Mattussek and George (37) in 1959 at Maudsley Hospital in London found that the reaction time of response to proverbs differentiated neurotics and schizophrenics. In a later study Payne and Hewlett (38) used matched groups of schizophrenics, depressives, neurotics and normals. Their prediction that overinclusiveness would be confined to the schizophrenics was substantiated with regard to their proverbs test. Bschor (12) at the Free University of Berlin has been utilizing proverbs to measure intelligence level.

In 1952, De Shon, Rinkel and Solomon (16) of Harvard Medical School used interpretation of proverbs in studying LSD and found that concrete responses were more numerous and came easier than abstract responses. In 1958, Silverstein and Klee (46) of the Psychiatric Institute in Baltimore, reported that subjects under LSD showed a loss in the abstracting function as measured by the Proverbs Test which quickly came back to its normal functioning after the influence of the drug wore off. Something of the highly specific nature of the type of verbal abstraction called for in interpreting proverbs is suggested by a personal experience reported to the author by Dr. Klee. Under the influence of LSD, he tested his own functioning at familiar tasks. In such matters as dictation of correspondence or medical reports there was no effect. When a proverb was given to him for interpretation however, he reports it was as though he were suffering from aphasia. He heard the words, could repeat the proverb over again, but seemed totally incapable of assigning any meaning to it.

In 1953, a group in Boston including Greenblatt, Solomon and Meadow (32, 33) were studying impairment in abstraction associated with schizophrenia. Meadow, a psychologist, developed the tests for their work. One of his tests used the Benjamin proverbs lists and was designed to measure "looseness of association" (33). Another test, consisting of a group of "emotional" and "neutral" proverbs was used to evaluate change associated with prefrontal lobotomy. In this latter study an increase in scoring on the emotional proverbs was found at the post lobotomy testing (32).

In 1956, Gorham (23) compared matched groups of schizophrenics and normals. He found highly significant differences between the groups on both the abstract and concrete scores of his test. In 1957, Elmore and Gorham (18)

found that matched groups of normals, schizophrenics and organics had significantly different mean scores. These studies suggest that the mental process which deteriorates under the wearing effects of prolonged schizophrenic illness and the mental loss from organic damage are similar. Also that this mental faculty is measured by the impairment of ability to interpret proverbs. In a closely associated area of investigation, Bromley (10) of the University of Liverpool used proverbs for detecting normal intellectual decline associated with ageing.

One of the most interesting uses of proverbs in psychiatric evaluation is that reported in 1959 by Lewis (29) and his associates at the Timberlawn Sanitarium in Dallas, Texas. They developed a multiple-choice proverbs test in which the content of the proverbs used was selected to typify various levels of psycho-sexual development. Their preliminary findings suggest that abstraction is specifically impaired in the area representing the psycho-sexual level of disturbance.

In 1960, O'Reilly and Harrison (36) administered the Proverbs Test to 67 consecutive admissions including schizophrenics, other psychotics, psychoneurotics and miscellaneous others. They found that the test had little predictive value for these groups but indicated some limited ability for measuring impairment in verbal conceptualization.

UNPUBLISHED STUDIES

In preparing for this paper, correspondence was carried on which brought to light a number of studies in process which have not as yet been published.

Church (15) at Vassar College is working in two areas; specificity and dominance. Although there are still gaps in his data he finds that "under-specificity (in effect, vagueness) persists much longer than over-specificity: awareness of generality precedes ability to handle it". Dominance is his term for the subject's degree of ability to formulate his understanding of a proverb.

A study in Benton's (9) laboratory at the State University of Iowa compared the performances of 80 non-psychotic patients with verified cerebral disease and 53 patients without history or evidence of such disease on the Gorham Proverbs Test. The two groups of patients were matched with respect to age and educational level. In the light of the differential abstraction scores made by the two groups, it is concluded that the Proverbs Test has considerable potential value for discriminating between brain-damaged and control patients. Studies comparing the discriminative value of various methods of scoring performance and comparing the discriminative power of the proverbs with other tests commonly used for the detection of brain damage, as well as determining the intercorrelations between the Proverbs Test and these other tests, are currently in progress in Benton's laboratory.

Halperin (26) at the Tripler Army Hospital in Hawaii, reports that proverbs "have proved helpful and are routinely administered in detecting concreteness and primitiveness in thinking and deficit in ability to deal with abstractions, as clues to latent thinking disorder or borderline organic brain disease".

Kingsley (30) at Walter Reed Army Hospital, Washington, found that the Proverbs Test was one of the three tests studied that differentiated acute schizophrenic patients from normal subjects independently of intelligence. In two groups of 50 each matched for age, intelligence and education, he found that the groups differed significantly on both the Abstract and Concrete scores of the Proverbs Test.

Grace (24) found a positive correlation between a single index which combined the Abstract and Concrete Scores of the Proverbs Test and the Barron Ego Strength score. He is now using the Proverbs Test in a battery in a study to predict success or improvement in a patient employee selection programme.

Major Haynes (27) of the U.S.A.F. reports that the Proverbs Test was utilized in studies to determine undue sensitivity in various test performances during hypoxic exposure (10,000 feet simulated chamber altitude for 30 minutes). The findings are not as yet available.

Wynne (52) is working at the New Jersey Neuro-psychiatric Institute at Princeton, using the Proverbs Test to study the effects of hospitalization in schizophrenia. His preliminary results for two very carefully matched groups of long-term and short-term schizophrenics showed marked impairment in the former.

Silverstein (45), who worked with proverbs in LSD studies, is now interested in qualitative analyses of proverbs data.

In an unpublished study, the author found that the Proverbs Test, both in the clinical and multiple-choice forms, was successful in measuring the change in mental status associated with chemotherapy treatment.

CLINICAL USE OF PROVERBS

It has already been intimated that in both Europe and America proverb interpretation is being used by psychiatrists and psychologists in evaluative testing and interviewing. Efforts to secure information on the extent and exact uses of proverbs in clinical practice have yielded only limited results. Dr. Anton Leischner (28) of this city (Bonn, Germany) uses proverbs during check-ups of motor aphasics. Dr. Viefhues of Heidelberg is known to use proverbs in clinical psychiatric work, but no detailed account of his experience has been received. In my own country, psychologists whom I meet at conventions frequently refer to the use of my test, and I infer from the conversations that they use it either as a part of a screening battery or in order to secure qualitative impressions of the level and peculiarities of verbalization. Seaquist (44) has found it possible to identify organic brain damage with satisfying accuracy with an extensive battery including the Proverbs Test. Perhaps this subject can best be disposed of in the words of Dr. Bschor, of the Free University of Berlin, who summed up the situation in a letter: "In Europa wird meines Wissens zwar praktisch viel mit Sprichwörtern gearbeitet, doch wenig publiziert" (To my knowledge, much practical work with proverbs is being done in Europe but very little is published).

CONCLUSION

It has been pointed out that the utilization of proverbs as a tool in evaluating mental processes had a slow start, and was initially limited principally to assessing intelligence. In the past decade, however, a considerable interest in this medium of measurement has developed in several parts of the world. Formal, published tests with objective scoring systems and normative data are now available for research and clinical use. The technique has been applied to a variety of problems including verbal impairment associated with psychiatric conditions, LSD, lobotomy, organic damage and simulated high altitude. Development of abstraction in childhood and its decline with old age are being investigated. Some applications are being made in personnel selection. Already research workers are building scoring methods particularly

adapted to the needs of their particular research problems. It is hoped that we are on the threshold of development of qualitative methods of scoring which will bring out the full potential of this interesting tool of mental evaluation.

REFERENCES

1. ACHILLES, E. M., "Experimental studies in recall and recognition", *Arch. Psychol.*, 1920, **44**, 1-80.
2. BAUMGARTEN-TRAMER, F., "A proverb test for attitude measurement", *Pers. Psychol.*, 1952, **5**, 249-261.
3. *Idem*, *Beruf- und sozial- psychologische untersuchungen bei Arbeitern*, 1956. Zurich: Rascher-Verlag.
4. BAUMGARTEN-TRAMER, Prof. Dr. Franziska, Thunstrasse 35, Bern, Switzerland. Personal communication, 10 June, 1960.
5. BASS, B. M., "Famous Sayings Test: general manual", *Psychol. Rep.*, 1948, **4**, Monogr. No. 6.
6. BECKER, W. C., "A genetic approach to the interpretation and evaluation of the process-reactive distinction in schizophrenia", *J. Abn. Soc. Psychol.*, 1956, **53**, 229-236.
7. *Idem*, "The process-reactive distinction: A key to the problem of schizophrenia", *J. Nerv. Ment. Dis.*, 1959, **129**, 442-449.
8. BENJAMIN, J. D., "A method for distinguishing and evaluating formal thinking disorders in schizophrenia". In Kasanin, J. S. (Ed), *Language and Thought in Schizophrenia*. 1944. Berkeley: University of California Press, 65-90.
9. BENTON, DR. ARTHUR L., State University of Iowa, Iowa City. Personal communication, 22 June, 1960.
10. BROMLEY, D. B., "Some effects of age on the quality of intellectual output", *J. Geront.*, July, 1957, **12**, 318-323.
11. BRONNER, A. F., HEALY, W., LOWE, G., and SHIMBERG, M. E., *A Manual of Individual Tests and Testing*, 1927. Boston: Little, Brown & Co., Pp. 187, 854.
12. BSCHOR, F., "Zur Organisation der Intelligenzvariante", *Nervenarzt*, in press.
13. BÜHLER, KARL, "Tatsachen und Probleme zu einer Psychologie der Denkvorgänge". I. Über Gedanken, *Archiv. Ges. Psychol.*, 1907, **9**, 297-365.
14. CHOYNOWSKI, DR. MIECZYSLAW, Head of the Psychometric Laboratory of the Polish Academy of Sciences, Warsaw, Poland. Personal communication, 5 December, 1959.
15. CHURCH, DR. JOSEPH, Vassar College, Poughkeepsie, N.Y. Personal communications, 31 March and 4 April, 1960.
16. DE SHON, H. J., RINKEL, M., and SOLOMON, H. C., "Mental changes experimentally produced by LSD", *Psychiatr. Quart.*, 1952, **26**, 32-53.
17. DEVOTO, DR. ANDREA, Psychology Institute, University of Florence, Florence, Italy. Personal communication, 17 June, 1958.
18. ELMORE, C. M., and GORHAM, D. R., "Measuring the impairment of the abstracting function with the Proverbs Test", *J. Clin. Psychol.*, 1957, **13**, 263-266.
19. EPSTEIN, S., "Overinclusive thinking in a schizophrenic and a control group", *J. Consult. Psychol.*, 1953, **17**, 384-388.
20. FINCKH, J., "Zur Frage der Intelligenzprüfung", *Zentralblatt für Nervenheilkunde*, 1906, **17**, 945-957.
21. GORHAM, D. R., "A proverbs test for clinical and experimental use", *Psychol. Rep. Monogr. Suppl.*, 1956, No. 1.
22. *Idem*, Proverbs Test. Clinical Forms I, II and III. Best Answer Form. Manual. 1956. Missoula, Mont.: Psychological Test Specialists.
23. *Idem*, "Use of the Proverbs Test for differentiating schizophrenics from normals", *J. Consult. Psychol.*, 1956, **20**, 435-440.
24. GRACE, D. P., "Experimental study of the construct validity of the Barron Ego Strength Scale". Doctoral dissertation, 1959. University of Missouri.
25. HALL, K. R. L., "The testing of abstraction with special reference to impairment in schizophrenia", *Brit. J. M. Psychol.*, 1951, **24**, 118-131.
26. HALPERIN, DR. SIDNEY L., Tripler Army Hospital, APO-438, Hawaii. Personal communication, 23 February, 1960.
27. HAYNES, H. C., Major, U.S.A.F., Chief, Aviation Medicine Branch, Washington, D.C. Personal communication, 11 September, 1959.
28. LEISCHNER, PROF. DR. ANTON, Rheinische Landeslinik für Hirnverletzte, Bonn, Germany. Personal communication, 8 February, 1960.
29. LEWIS, J. M., GRIFFITH, E. C., RIEDEL, A. F., and SIMMONS, B. A., "Studies in abstraction: Schizophrenia and orality; preliminary results", *J. Nerv. Ment. Dis.*, 1959, **129**, 264-267.
30. KINGSLEY, DR. LEONARD, Veterans Administration Hospital, Brooklyn 9, N.Y. Personal communications, 17 February, 21 June, 1960.

31. LOEB, B., "The function of proverbs in the intellectual development of primitive peoples. *Sci. Monog.*, 1942, **74**, 100-104.
32. MEADOW, A., Chaps. 4 and 17. In Greenblatt, M., and Solomon, H. C., *Frontal Lobes and Schizophrenia*. 1953. New York: Springer Publ. Co.
33. *Idem*, GREENBLATT, M., and SOLOMON, H. C., "Looseness of association, and impairment in abstraction in schizophrenia", *J. Nerv. Ment. Dis.*, 1953, **118**, 27-35.
34. MOGENSEN, ALAN, Department of Psychiatry, Aarhus University, Risskov, Denmark. Personal communications, 27 November, 1957, 15 January, 1960.
35. MORAN, L. J., "Vocabulary knowledge and usage among normal and schizophrenic subjects", *Psychol. Monogr.*, 1953, **67**, No. 20.
36. O'REILLY, P. O., and HARRISON, K., "The Gorham Proverbs Test", *Dis. nerv. Syst.*, 1960, **21**, 382-385.
37. PAYNE, R. W., MATTUSSEK, R., and GEORGE, E. I., "An experimental study of schizophrenic thought disorder", *J. Ment. Science*, 1959, **105**, 627-652.
38. PAYNE, R. W., and HEWLETT, J. H. G., "Thought disorder in psychotic patients". In H. J. Eysenck (Ed.), *Experiments in Personality*, 1960. London: Routledge and Kegan Paul.
39. PIAGET, J., "La pensée symbolique et la pensée de l'enfant", *Arch. Psychol.*, Genève, 1923, **18**, 273-304.
40. RABIN, A., and BROIDA, D., "Projection via proverbs: Follow-up of a suggestion", *J. Consult. Psychol.*, 1948, **12**, 246-350.
41. RAPPAPORT, S. R., "Intellectual deficit in organics and schizophrenics", *J. Consult. Psychol.*, 1953, **17**, 389-395.
42. RICHARDSON, C., and CHURCH, J., "A developmental analysis of proverbs interpretations", *J. Genet. Psychol.*, 1959, **94**, 169-179.
43. RYLANDER, G., "Psychological tests and personality analysis before and after frontal lobotomy". VIII Congr. Scand. Psychiatr. Copenhagen (1946). *Acta Psych. and Neurol. Scand. Suppl.*, **47**, 383-398.
44. SEAQUIST, MAURICE P., Chief Psychologist, 3750th U.S.A.F. Hospital, Sheppard A.F.B., Texas, personal communication.
45. SILVERSTEIN, DR. ARTHUR B., Pacific State Hospital, Pomona, California. Personal communication, 11 August, 1959.
46. SILVERSTEIN, A. B., and KLEE, G. D., "Effects of lysergic acid diethylamide (LSD-25) on intellectual functions", *A.M.A. Arch. Neurol. and Psychiat.*, 1958, **80**, 477-480.
47. STERN, E. (Ed.), Band I, *The Tests in Clinical Psychology*, 1954. Zurich: Rasher, pp. 396-399.
48. TERMAN, L. M., and MERRILL, M. A., *Measuring Intelligence*, 1937. Boston: Houghton Mifflin Co.
49. WECHSLER, D., *Wechsler Adult Intelligence Scale*. Manual, 1955. New York: Psychological Corporation.
50. WELLS, F. L., and RUESCH, J. (Comps.), *Mental Examiners' Handbook*, 1942. New York: Psychological Corporation.
51. WEGROCKI, H. J., "Generalizing ability in Schizophrenia", *Arch. Psychol. Monog.*, 1940, No. 254.
52. WYNNE, R. D., "The influence of hospitalization on the verbal behaviour of chronic schizophrenics". Doctoral dissertation, Catholic University, Washington, D.C.
53. ZIEHEN, TH., *Die Prinzipien und Methoden der Begabungsprüfung, insbesondere der Intelligenzprüfung bei Gesunden und Kranken* (5th edition), 1923. Berlin: Karger.

THE PROBLEM OF IN-PATIENT PSYCHOTHERAPY

By

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ADMISSION of patients with neurotic or personality disorders to psychiatric hospitals is fraught with a number of difficulties. These arise partly from the fact that the majority of psychiatric hospitals are designed primarily for the needs of psychotic patients. Other difficulties come from the character of the patients themselves and from the complexities of the treatment they require.

This article attempts to explore the nature of some of these treatment difficulties and to make suggestions as to how they might be approached. It is based on some experience gained during the establishment of an in-patient psychotherapy unit in a psychiatric hospital. The aim, however, is more to suggest the nature of the problems involved than to draw many firm conclusions.

HOSPITAL REGIME

Psychiatric hospitals are customarily divided into wards or units containing patients of similar clinical condition, with admission wards which are often of a closed character. If psychotherapy patients enter the admission units they are likely to be exposed to a much greater degree of restriction than is generally appropriate to them. The rituals of counting cutlery, removing their "sharps" and matches, or walking in crocodiles shepherded by nurses, may often be distressing for them and make them feel their condition is more serious than it is. Such a patient is often very apprehensive about admission to a psychiatric hospital and may find many of his fears confirmed.

The obvious unsuitability of such admission wards may result in psychotherapy patients being moved to a convalescent unit within a few days of arrival. Such a rapid change is not conducive to the process of adjustment to treatment, and may disrupt the psychotherapy situation. The change in atmosphere often results in patients dividing the staff into "bad" and "good", according to the degree of restriction in each ward. This might confuse the rapport situation with the therapist, particularly if there is no opportunity for patients to discuss or work through their problems in relation to ward staff, except in psychotherapy interviews. The addition of temporary and extraneous interpersonal difficulties is then likely to interfere with the handling of more fundamental problems. This will particularly be the case if there is no opportunity for group discussion among either patients or staff.

The lack of such consultative arrangements may provide opportunity for patients to play off doctors against each other, e.g. demanding treatments which other patients are receiving (particularly the more dramatic treatments), or involving other doctors in their problems. For the psychopath, such a situation offers endless possibilities of creating disruption and there is a ready formation of "in" and "out" groups around particularly difficult patients,

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(Main, 1957). In such situations there may be involvement of P.S.W.s, nursing officers, occupational therapists, administrators, etc.—all anxious to help, but contributing to confusion through lack of co-ordination of their efforts. Almost any psychiatric hospital can provide examples of patients, around whom the entire life of the hospital has seemed to revolve for a time. Such patients may be referred to psychotherapists for treatment; if so, it is important that their character defects should not be allowed to be endlessly disruptive within the hospital.

The strict segregation of sexes, both amongst patients and staff, remains operative in most psychiatric hospitals. For psychotherapy patients it is clearly inappropriate. The majority have problems connected with interpersonal relations and many have difficulties in dealing with the opposite sex. To be kept in a unisexual environment may merely increase their withdrawal from reality and postpone the opportunity for them to mix with others in a normal manner.

In psychiatric hospitals, leave has usually been a matter whose formalities rival those of the Army. This sort of complication is undesirable in the management of psychotherapy patients, particularly as some may be working, at least part-time. Once an exception has been made from strictly defined periods, other patients are likely to present important reasons for being granted extra time out, which it is difficult to oppose on consistent grounds. In any case, if the patient is on an open ward it may be very difficult to keep him in against his will. In such circumstances, staff policy may tend to vacillate, with periodic attempts to reimpose a rigid system whose rationale has long passed. Here, as with other disciplinary problems, patients may project their dissatisfaction away from the ward staff (both medical and nursing), on to more distant figures of authority. In this, they may be sensing and utilizing stresses within the staff structure.

However, it must surely be accepted that for psychotherapy patients "leave" in the traditional sense is an entirely outdated concept. Their management should involve, not shelter from the outside world, but generally a breaking down of isolation which has resulted from internal conflicts. There may be occasional cases which require a more controlled regime, but most psychotherapy problems need encouragement rather than restriction in their dealings with ordinary life, once the minimal demands of treatment are met. The use of a written pass is also a practice to be deplored in these cases.

PHYSICAL ENVIRONMENT

Most hospital buildings in this country are old or improvised—sometimes both. In the case of psychiatric hospitals, the wards are almost certain to have been designed for the reception of psychotic patients. Unless a major upgrading has been carried out, this purpose is likely to be obvious in the appearance of the buildings. Windows may be small and their opening restricted; doors may be massive and clang noisily; fireplaces may be covered by iron cages; single rooms may be cell-like and offer no guarantee of privacy (nor may the toilet facilities); "ancient monuments" in the form of hydrotherapy baths or padded rooms may remain. Decoration may be of depressing uniformity and pictures of a type which merely contributes to the gloom. Curtain materials and chair covers may be drab and old fashioned. Old furniture is likely to be very unsatisfactory from the point of view both of comfort and appearance; in many cases it may be suggestive of a workhouse. The absence of suitable easy chairs may be unhelpful both for individual and group psychotherapy. There are usually

insufficient rooms for doctors (sometimes none), and such as there are may be quite unsuitable in their atmosphere for psychotherapy. Lighting, heating and sound insulation often leave much to be desired.

As Russell Barton (1959) pointed out, a drab, neglected atmosphere carries the message that no one cares what happens within the building. For psychotherapy patients, many of whom are of high intelligence and sensibility, surroundings are of particular importance. Not only should these be bright and contemporary, but there should be scrupulous avoidance of any features reminiscent of a custodial regime, or the needs of acutely disturbed patients.

STAFF

The nursing staff of psychiatric hospitals has generally been trained primarily for the management of psychotic patients, with particular emphasis on the care of disturbed cases. It has been unusual for them to receive systematic instruction in the meaning of unconscious mental processes, the dynamics of groups or the practice of psychotherapy. Clearly, it would not be easy for such nurses to adopt a new set of attitudes and habits for the purpose of dealing with a group of psychotherapy patients; perhaps it is something which should not reasonably be demanded.

Needless to say, a group of patients containing both sexes requires a mixed nursing staff in which a male nurse might act as deputy to the Sister (or vice versa with a male Charge Nurse). Such an arrangement would seem easier where there is a unified nursing staff than where the division persists between two separate staffs, each under its own head. Both group discussions and the organization of activities are likely to be made easier by having a mixed staff on the ward.

Part-time or assistant nurses may be valuable additions to the staff. Many are middle-aged married women who can provide a firmer link with everyday life than some of the more institutionally minded nurses. They may perform the function taken in some units by social therapists.

As far as the management of psychotherapy patients is concerned, there seems to be a need for a new concept of nursing in which the care of physically sick and disturbed patients has less emphasis than the support of the individual and working with groups.

A problem may sometimes be presented by night staff who are often a fluctuating group, difficult to integrate into any particular policy. They tend, in many cases, to follow their accustomed routines, using sedatives as generously as the prescribed limits permit. In this connection, the customary rigid division of the hospital day into two halves, each with its separate staff, is not conducive to the maintenance of a consistent regime, particularly as night staff tend to be seen rarely and briefly by the doctors. There must be many cases in which patients' alleged demands for sedatives are more a reflection of the anxieties of night staff.

ACTIVITIES

If patients are admitted for psychotherapy, one of the most pressing problems is that of organizing suitable activities for them, or otherwise ensuring that their time is occupied in a manner which will not be detrimental to treatment. There is a limit to the amount of time in any day which can be devoted to the conventional forms of occupational therapy. Further, the majority of craft activities, as found in most O.T. departments, are primarily female-orientated. Apart from carpentry few hospitals can provide a range of

realistic and practical activities for men. The partial withdrawal from everyday life, which is involved in admission to hospital, may be further emphasized by spending the bulk of each day in hobby-type activities.

Like other aspects of psychiatric hospitals, occupational therapy departments have been geared to the needs of those whose level of functioning is impaired, either mentally, physically, or both. Psychotherapy patients may have to be included in a regime designed primarily for the disturbed or deteriorated and it is not surprising that a wide range of symptoms may be employed in a determined passive resistance against it. The situation may, however, be rather better if nurses are taking part in the activities at the same time, rather than exercising an unwanted "supervision", which may mean that the work is no longer the patient's own.

Domestic science is now a part of many occupational therapy departments and is an activity particularly well suited to psychotherapy patients of both sexes, being firmly linked to reality and lending itself to the encouragement of re-socialization through "supper parties", etc. However, it might be even better if patients had full responsibility for their own catering, rather than being involved in the activity only occasionally.

This may be linked to the general question of domestic chores for these patients. In admission units it is often assumed that patients can do little to help and a domestic staff is responsible for all the chores. It seems unnecessary that psychotherapy patients should be waited on in this way—a procedure likely to increase their isolation from everyday life and the apparent undesirability of discharge. However, the degree of permissiveness which should be maintained in this matter is a difficult question to decide. Whilst most would agree that the barrack-like polished brass and slippery floors of the old hospital are undesirable, minimum standards must be maintained, at least for hygiene. Even this is likely to produce problems when the patients concerned suffer from neuroses and personality disorders—any form of discipline may arouse hostility and resistance in many. If the organization of chores can be done by a patient, this is greatly to be preferred, but a patient with suitable determination is not always likely to be available. It is also desirable that disciplining of those patients who fail to do their share should be by the patient group rather than the staff, but this requires the effective establishment of a collective super-ego. Once this has been done, the type of selective memory impairment which picks out unpleasant duties may be dealt with by the patients themselves. Whatever the arrangement, there may be circumstances in which the nursing staff may have to take the lead for a time, but flexibility should be such that responsibility for cleaning will before long return to the patient group, which should set its own standards.

There may be a hard core of patients who will not do anything, except momentarily, and others whose interest is very evanescent. Some may be pre-occupied with the question of "rest" to the extent that bedrooms may have to be placed out of bounds at certain times. The degree of anergia sometimes displayed can induce a feeling of impotence and frustration in the staff, which may provoke a swing from permissiveness to authoritarianism. Probably the most important factor from their point of view is that they should agree on some policy which is consistently carried out—it must be expected that some patients will react badly, whatever form it takes.

GROUP MEETINGS

The lack of machinery for consultation, which has already been referred

to, and which is commonly found in psychiatric hospitals, is a matter of serious concern in relation to psychotherapy patients. Regular meetings of all ward staff are essential, particularly when staff are concerned who are more experienced in the care of disturbed or psychotic patients than with those receiving psychotherapy. These consultations should include social workers, occupational therapists and any other members of the hospital staff who are concerned directly with the patients. In addition, a general meeting of all patients and ward staff is valuable to allow any grievances or ward problems to be raised. This may conveniently be followed by a staff meeting, where policy can be decided in relation to the matters brought up, and the significance of the contribution of individual patients assessed.

A more directly therapeutic group is a separate problem which must be considered in relation to the degree of individual psychotherapy available. Patients are likely to be reluctant to discuss questions of deep personal significance, when they are involved in intensive individual therapy. It is possible, of course, to organize psychotherapy exclusively on group lines, when presumably meetings would be very frequent, but unless groups were admitted and discharged together, there would be problems resulting from changes in their composition. It is also possible to consider a general group of patients meeting occasionally and with the discussion directed in its general lines by a doctor, as an adjunct to individual psychotherapy. Such a group might be helpful in adjusting inter-personal relationships, but the value would have to be considered rather speculative.

It should be expected and encouraged that patients practise a certain degree of self-government through their own group meetings and the election of a committee. This might deal with such matters as the organization of ward chores, recreational activities and social events (which should not require supervision from the staff). These matters would not only give opportunities for patients to work together and practise the social skills they often lack, but allow some to feel the satisfaction of prestige and status, which they may never have experienced before.

It is hardly necessary here to expand on the general merits of group activities, now accepted as one of the main foundations of psychiatric administration and treatment. The place these take in any unit offering psychotherapy is an important function of that unit's character and is to be related particularly to the degree of individual treatment offered. Freudenberg *et al.* (1957) state: "It provides an opportunity for the nursing staff to relate their attitudes directly to those of the patients and enables them to learn more of the patients' needs and their own expectations. Apart from the direct value of this communication we believe that these groups serve to give the staff a sense of dignity and responsibility as well as serving an important educative function."

PATIENTS

The type of patient who would normally be accepted for in-patient psychotherapy would be suffering from a severe neurosis or personality disorder, or from one of their marginal conditions. Occasional patients might be treated who were in the early or convalescent stages of a psychosis, but it is to be expected that there would be a definite limit to the degree of tolerance for disturbed behaviour shown by the patient group. Above that, there might be a danger of disturbance "sparking" from patient to patient, in the form of an epidemic of broken windows or suicidal gestures.

There is a distinct possibility that in-patient psychotherapy might become a temporary refuge for those generally unfitted for everyday life, in a similar manner to that postulated in connection with day hospitals by Fox *et al.* (1960). Through social pressures, patients may be selected who show marked deviance in their family situations and interpersonal relationships, often with a poor work history. If this occurs, it may be a very uphill struggle to return these patients to the outside world once they have been admitted.

DISCUSSION

To what extent is it justifiable to admit patients for psychotherapy, which is often prolonged? Their individual treatment is unlikely to exceed four hours weekly, but they may also have the benefit of group discussions, occupational therapy and the hospital milieu—assuming all these are beneficial.

There are certain classes of patients who could not receive regular psychotherapy on account of distance, expense of travelling, loss of working time or phobic symptoms. Others have broken down in their life situations and admission seems advisable, not only for treatment or supervision (as in the case of potential suicides), but also for social reasons. For instance, the patient living alone who is not eating enough, taking too many drugs, and feels unable to go on working. The situation presents a crisis in which something must be done by the doctor and it is usually hoped that the hospital régime will assist rehabilitation.

However, there is another side to the picture. The social deviance of many such patients has already been referred to—the ordinary business of living in the community is an intolerable burden to them. If taken into hospital, they are safe for the time being from their reality problems. It is hardly surprising if they resist to the utmost any suggestion of return to the outside world, or if their symptoms persist. A comfortable bed, a warm room, regular meals, diversion, companionship—all these may have to be struggled for outside. In hospital they are provided and no effort is needed.

Though it solves some problems, hospital admission may create others. Unlike the out-patient, who is a person in the community, receiving treatment at certain times, the person inside the hospital is, for the time being at least, a professional patient—he does nothing else. His presence there indicates, both to himself and to others, that he has given up the struggle and failed in the business of life. This may be unavoidable if normal function has broken down, but the decision to admit a patient is not one to be taken lightly. The patient may suffer from the effects of isolation from his life situation and problems may be created by his absence.

If a patient has problems in the community, the place to work them out seems to be there, as far as possible. He may require help with this process, but not withdrawal from the situation. Away from reality the sources of stress may seem insignificant or more alarming—they cannot be experienced as they are. As an example, one may take the treatment of “shell shock” in the First World War; evacuation to a remote hospital merely perpetuated symptoms; it was treatment close to the front line which was most effective. The front line of psychiatry is the community and its casualties should not too readily be removed.

What of the benefits of the hospital milieu for psychotherapy patients? Generally they seem unimpressive. The full panoply of hospital routine and nursing services is supplied, yet is applicable to only a minority of these patients.

There may be room for a serious re-thinking of the question of admitting patients for psychotherapy. These considerations, however, would not necessarily apply to other groups of psychiatric patients.

It would probably be generally agreed that the best method of providing psychotherapy is to outpatients. Next best, if work or house duties are impossible, to day patients. If a patient is prevented by geography from using either of these situations a solution might be for him to attend a day hospital and sleep in a nearby hostel. This ought to be much cheaper than occupying a bed with full hospital facilities, which he generally will not need. It would also be a less isolated and unreal situation than the hospital, with much less of a gap between it and home.

Assuming that suitable hostel facilities are not available (which seems likely to be the case for a long time ahead), how can a hospital best provide for its psychotherapy patients who need accommodation? The answer should be something very different from a conventional hospital ward with dormitories, day rooms, sluices and clinics. A large old house would be ideal, with more of the feeling of a family home than an institution. Patients should not be more than two or three to a bedroom. The amenities should strike a balance between avoiding irksome discomfort on the one hand, and providing luxury which patients are unlikely ever to experience again on the other. Décor and furnishing should be bright and contemporary, encouraging an atmosphere of confidence. The house should not be in the country or a remote suburb, but close to urban amenities with which patients should be in daily contact. Patients should not be waited on (placing them in an unnatural situation) but should be responsible for the domestic work and for the cooking. Conventionally trained nurses would scarcely be required, but social therapists (who might well be married women with grown-up families), could perform most of the supportive, supervisory and organizing rôles. "House parents" similar to the married couples now employed in children's homes might be appropriate. Drugs could be obtained by the patients from local chemists on prescription, and ancillary medical facilities at local general hospitals or from general practitioners. Administrative and overhead costs could thus be cut to a minimum. Whilst reasonable recreation and craft equipment could be provided, there should be no need for a conventional occupational therapy service. However, the services of a psychologist and social worker would be important.

Clearly, admission to such a unit would have to be carefully selected, particularly to avoid major nursing problems, but there seems no reason why its patients should not attend for out-patient E.C.T. at the parent psychiatric hospital, if appropriate.

A new approach to the problem—of the sort which has been explored by units such as the Cassel Hospital and Stepping Stones House, might yield great rewards.

ACKNOWLEDGMENT

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REFERENCES

- BARTON, RUSSELL, "Institutional Neurosis", 1959, Bristol.
FOX, R. *et al.*, letter in *Lancet*, 1960, *i*, 824.
FREUDENBERG, R. K., BENNET, D. H., and MAY, A. R., *Int. Cong. Psychiat.*, 1957, *1*, 157.
MAIN, T. F., *Brit. J. Med. Psychol.*, 1957, *20*.

THE EFFECTS OF MEPROBAMATE ON TIME PERCEPTION

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INTRODUCTION

THE change in time perception produced by the administration of drugs has received a fair amount of attention. Frankenhaeuser (6) has reviewed the work on the effects of hashish and mescaline intoxication on the estimation of time. She concludes that "there seems to be some agreement in that time seems longer than usual in passing but shorter when regarded in retrospect". But this work dealt with introspective reports regarding the passage of time rather than with quantitative changes and will not be discussed further here.

Sterzinger (12, 13) studied the effects of quinine, thyroxine, caffeine and alcohol on time estimation. His results were inconsistent and numerous methodological faults in his work have been pointed out by Frankenhaeuser (6). Clauser (1) reports evidence of the effect of quinine on time estimation but only one subject was used and there are no control data. Frankenhaeuser (6) found that neither quinine nor caffeine produced significant changes in time estimation.

Steinberg (11) studied the effect of 30% nitrous oxide in oxygen on time perception. The subject was required to estimate the duration of 30 seconds by counting aloud at an estimated speed of one count per second. No significant difference was found between the objective time taken to complete the count of thirty under drug and control conditions. Frankenhaeuser (6) refers to a personal communication from Burns (1958) in which he reports that productions of 15-second intervals were markedly longer under the influence of nitrous oxide (20-30 per cent. in oxygen) compared with productions under oxygen. Frankenhaeuser herself found that a mixture of 30 per cent. nitrous oxide and 70 per cent. oxygen did not have a significant effect on present time estimates but did produce significantly smaller past time estimates.

In the study to be reported here we were concerned with the predictions from the drug postulate of Eysenck's theory of cortical excitation-inhibition (3) as to the effects of a depressant drug—meprobamate—on time estimation. Frankenhaeuser has presented evidence showing that increasing the amount of mental content by increasing the amount of external stimulation made the objective second seem subjectively longer whereas a decrease in the amount of mental content had the reverse effect. In so far as an increase in inhibitory potential can be assumed to reduce the amount of mental content one would predict that depressants would make the objective second seem subjectively shorter, whereas stimulants would make the objective second seem subjectively longer. Frankenhaeuser reports that 200 mg. pentobarbital and 10 mg. metamphetamine produced significant changes in present time estimates in line with the above prediction. Goldstone, Boardman and Lhamon (7) have also reported evidence on the effects of 0.2 g. secobarbital (quinalbarbitone) and 15 mg. dextro-amphetamine which are in line with the above prediction. The longer

productions of 10 and 20 second intervals after intravenous injections of isomyl (amylobarbitone) reported by Hormia (8) are also in line with the prediction since a decrease in the subjective length of the objective second would be expected to lead to longer productions.

Frankenhaeuser also presented evidence indicating that more was retained of the time units within a given interval under conditions which favoured retention of the events which occupy the time period than under conditions which impede retention. Since an increase in inhibitory potential would be expected to impede retention it can be predicted that stimulant drugs would increase the time retained and depressant drugs would decrease the time retained. Frankenhaeuser's results with secobarbital and dextro-amphetamine are in line with the prediction.

The prediction tested in this study was that meprobamate as a depressant drug would produce a decrease in the reproduction of time intervals.

METHOD

Llewellyn-Thomas (9) describes a technique which amplifies a subject's error in the reproduction of time intervals by using positive feed-back. The technique used in this study was based on that of Llewellyn-Thomas.

A buzzer was used as the Standard. The subject sat blindfolded at a table, the fingers of his right hand on a telegraph key. The buzzer was sounded initially for 5 sec. or 10 sec.; these periods were the initial standards and the order of presentation of the two periods was counterbalanced for the subjects used. The subject was instructed to press the key as soon as the buzzer stopped, thus sounding the buzzer again, and to keep the buzzer sounding by holding the key down for a period which he estimated to be the same as the standard. He was told not to count. He was to release the key and thus stop the buzzer at the end of his judgment.

Five seconds after his judgment, the subject was presented with a further stimulus period which was his own reproduction of the last stimulus. The subject was told that the Standards might not all be the same but was not told that feed-back was being used.

The cycle was repeated ten times. The successive Standards and Judgments were recorded with a stop watch.

Each subject was given two treatments (i) placebo (ii) 800 mg. meprobamate on two different days, the order of treatment being counterbalanced. Both the placebo and meprobamate were in identically appearing tablet form and taken orally. On each day the subject was tested 1½ hours after administration of the treatment.

Subjects

The total N in this experiment was twenty. There were 12 male and 8 female subjects. The ages of the sample ranged between 17 and 47 years with a mean of 29.95 years. All were paid volunteers and were of average or above average intelligence.

RESULTS

Figures 1 and 2 show the results in diagrammatic form. The mean judgment for the twenty subjects is plotted against the number of the cycle. The graph given for the initial 10 sec. Standard demonstrates consistent underestimations on both the placebo day and the drug day.

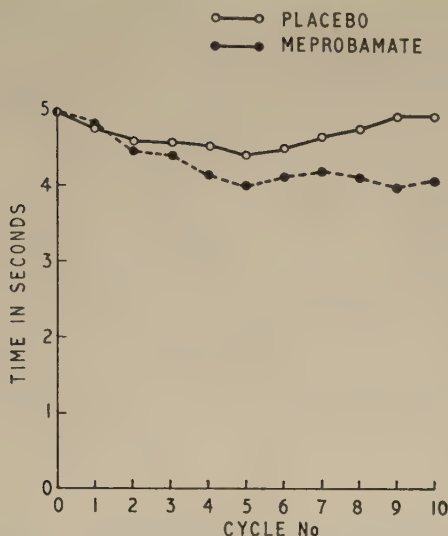


FIG. 1.—The reproductions of the time period (initial Standard 5 sec.) is plotted against the number of the cycle. Each point is the mean of 20 subjects.

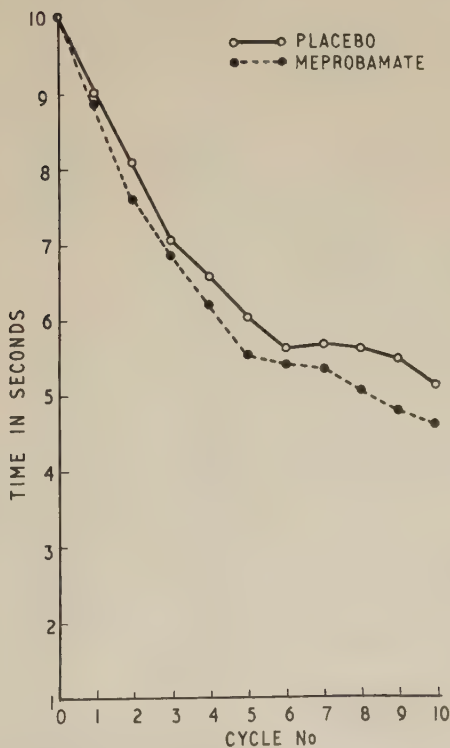


FIG. 2.—The reproduction of the time period (initial Standard 10 sec.) is plotted against the number of the cycle. Each point is the mean of 20 subjects.

The graph given for the initial 5 sec. Standard demonstrates no consistent trend on either the placebo or drug day. But in actuality the graph based on the means hides large individual differences. Twelve of the subjects showed consistent underestimations, four showed consistent overestimations and only four showed no consistent trend. Despite these individual differences we have given the graphs based on the means. We are concerned here with the differences between the placebo and drug day readings and the feed-back method has simply been used in an attempt to amplify this difference. Llewellyn-Thomas (9) has presented individual curves in his paper and has discussed their significance.

It can be seen that meprobamate as predicted tends to produce a decrease in the reproduction of the time intervals. The difference between the placebo and drug day reproductions is greater the later the cycle in the series.

Despite the consistency of the treatment effect over the ten cycles so far as the mean scores were concerned, there were large individual differences in the treatment effect. The difference between the means at the tenth cycle for both the initial 5 sec. and 10 sec. Standards were not statistically significant when tested with a t test.

Analyses of variance were carried out for the initial 5 sec. and 10 sec. Standard. It can be seen in Tables I and II that the main "Treatment" effect was

TABLE I

Analyses of variance of the results for the 5 sec. initial Standard

Source			Degree of Freedom	Sums of Squares	Mean Squares	F	P
Subjects	..	..	19	1933.80	101.78	6.790	< .001
Treatments	..	..	1	17.98	17.98	1.199	N.S.
Days	..	..	1	5.11	5.11	—	N.S.
Residual (1)	..	..	18	269.87	14.99	19.854	< .001
Total	..	..	39	2226.76			
Cycles	..	..	9	7.28	.809	1.071	N.S.
Cycles/Subject	..	..	171	502.87	2.94	3.894	< .001
Cycles/Treatment	..	..	9	9.41	1.04	1.384	N.S.
Cycles/Day	..	..	9	1.92	.21	—	N.S.
Residual (2)	..	..	162	122.35	.75		
Total	..	..	399	2870.59			

TABLE II

Analysis of variance of the results for the 10 sec. initial Standard

Source			Degree of Freedom	Sums of Squares	Mean Squares	F	P
Subjects	..	..	19	3468.63	182.56	5.596	< .001
Treatments	..	..	1	86.31	86.31	2.646	N.S.
Days	..	..	1	18.41	18.41	—	N.S.
Residual (1)	..	..	18	587.20	32.62	21.517	< .001
Total	..	..	39	4160.55			
Cycles	..	..	9	640.17	71.13	46.919	< .001
Cycles/Subject	..	..	171	499.00	2.92	1.926	< .001
Cycles/Treatment	..	..	9	8.73	.97	.640	N.S.
Cycles/Day	..	..	9	9.48	1.05	.695	N.S.
Residual (2)	..	..	162	245.67	1.52		
Total	..	..	399	5563.60			

not significant for either initial Standard. This is due to the highly significant "Subject/Treatment" interaction in the case of both Standards. It can be seen also that the main "Subject" effect is significant for both standards and the main "Cycle" effect is significant for the 10 sec. Standard. The "Subject/Cycle" interaction is significant for both Standards.

The Wilcoxon Matched-Pairs Signed-Ranks Test (10) was also applied to the differences between the placebo and drug readings at the tenth cycle for both the 5 sec. and 10 sec. initial Standard. But on this test as on the parametric ones above, the differences were not significant.

Extraversion scores from the M.P.I. (4) were available for all the subjects. In view of the large individual differences it was decided to correlate these scores with the scores on the time estimation test.

Eysenck (5) investigated the relationship between personality and the reproduction of four time periods 5 sec., 10 sec., 20 sec., and 30 sec. His subjects were 30 extraverted neurotics and 30 introverted neurotics chosen from 160 patients on the basis of their scores on the M.P.I. He found that extraverts gave significantly shorter reproductions than introverts, the difference between the means being significant for the 5 sec. and 10 sec. periods.

Eysenck's results are what one would predict from his theory of cortical excitation-inhibition and Frankenhaeuser's analysis of the processes involved in the retention of time. It will be remembered that Eysenck postulates that inhibitory potential builds up more readily in extraverts than in introverts.

It is clear that one would expect a negative correlation between extraversion scores and the scores representing the reproductions of the time intervals. Product moment correlations were calculated between the E scores and the subjects' reproductions of the 5 sec. and 10 sec. period at the 1st and 10th cycle on the placebo day. All the correlations were negative but insignificant (r ranged from $-.11$ to $-.18$).

In so far as inhibition is postulated by Eysenck to build up more quickly in extraverts one would predict a positive correlation between E and the decrease in the reproductions produced by meprobamate. Product moment correlations were calculated between E scores and the percentage decrease in the reproductions produced by the drug at the 1st and 10th cycle for both the 5 sec. and 10 sec. initial Standard. All the correlations were negative contrary to prediction but were insignificant, the r for the 10 sec. initial Standard was $-.19$ at the 1st cycle and $-.32$ at the 10th cycle. The correlation for the 5 sec. initial standard was $-.12$ at the 1st cycle and $-.03$ at the 10th cycle.

DISCUSSION

Despite the demonstrated tendency of meprobamate to produce a decrease in the reproductions of time periods further work would need to be done before it could be established definitely whether or not meprobamate had the same effects as other depressants on time estimation.

Further work also needs to be done to establish the relationships between personality and time estimation. Here again only tendencies have been revealed by the signs of the correlations.

A number of reasons may be suggested for the failure in this study to obtain a significant drug effect:

(i) The subjects used were also given an after-image and spiral after-effect test and the experiment was designed primarily to investigate individual differences in drug effects. Individual differences in the effect of the drug on the after-image and the spiral after-effect were shown to be significantly correlated with

extraversion scores in an earlier study (2). These significant correlations occurred when measures of the drug effect $1\frac{1}{2}$ hours after administration of meprobamate were used. It was for this reason that the time since administration of treatment was set at $1\frac{1}{2}$ hours in the present study. It may be that the drug effects on time estimation would show up more clearly if a longer time was allowed to elapse between the administration of the drug and testing. It was found in the earlier study mentioned above that the effect of meprobamate on the after image increased up to $3\frac{1}{2}$ hours after administration of the drug.

(ii) We have noted in the introduction that Steinberg found no significant difference between the objective time taken to complete the count of thirty under drug and control conditions. She did find, however, that both the placebo and the nitrous oxide produced a significant increase in the objective time taken when the results were compared with pre-placebo and pre-drug conditions. No pre-drug readings were taken in the present study. It may be that the placebo also produced a decrease in the reproduction of the time intervals thus masking the effect of the meprobamate.

(iii) Perhaps more important than the above two reasons is the following. Frankenhaeuser has criticized the method of reproduction in the study of time estimation on the grounds of its being a highly complex measure of time perception involving estimates of present and past time. She did not find any significant effects produced by pentobarbital or metamphetamine on the reproduction of a 10 sec. period.

The complexity of the method of reproduction is worth examining a little further. In so far as the method involves estimates of past time one would predict that meprobamate would produce a decrease in the reproduction. The argument for this has been outlined above. But in so far as it involves estimates of present time during the actual reproduction one would predict an increase in the objective duration of the reproduction. Thus, the effect of meprobamate on the estimation of past time might be masked partly by its effect on the estimation of present time.

It may be that the complexity of this method of time estimation also accounts for the lack in this study of significant correlations between personality and the time estimates.

It would seem then that more refined methods of studying time estimation will have to be used in future. Some combinations of Llewellyn-Thomas's feed-back technique and Frankenhaeuser's techniques may prove more sensitive to drug effects and personality differences.

SUMMARY

(1) The effects of meprobamate on the reproduction of a 5 sec. period and a 10 sec. period was investigated. A feed-back technique was used to amplify the drug effect.

(2) Twenty subjects were tested under two conditions each on two separate occasions. The two conditions were (i) administration of placebo; (ii) administration of 800 mg. meprobamate. Testing was done on each day $1\frac{1}{2}$ hours after administration of treatment.

(3) The drug tended to produce a decrease in the reproduction of the time periods as predicted, but the effects were not significant.

(4) Negative correlations were found as predicted between extraversion and the reproduction of the time periods under placebo conditions, but none of the

correlations were significant. Negative correlations were also found between extraversion and the effects of the drug on the reproduction of time, but none of the correlations were significant.

(5) A number of possible reasons for the lack of significant results have been presented.

REFERENCES

1. CLAUSER, G., *Die Kopfuhr. Das automatisches Erwachen*. Stuttgart: Enke, 1954.
2. COSTELLO, C. G. The effects of a depressant drug on certain perceptual tests. Ph.D. Thesis, University of London, 1960.
3. EYSENCK, H. J., "Cortical inhibition, figural after-effect and theory of personality", *J. abnorm. soc. Psychol.*, 1955, **51**, 94-106.
4. EYSENCK, H. J., *The Maudsley Personality Inventory*. University of London Press, 1959.
5. EYSENCK, H. J., "Personality and the estimation of time", *Percept. Mot. Skills*, 1959, **9**, 405-406.
6. FRANKENHAEUSER, M., *Estimation of Time*. Stockholm: Almqvist & Wiksell, 1959.
7. GOLDSTONE, S., BOARDMAN, W. K., and LHAMON, W. T., "Effect of quinalbarbitone, dextro-amphetamine, and placebo on apparent time", *Brit. J. Psychol.*, 1958, **49**, 324-328.
8. HORMIA, A., "On the sensation of duration, especially regarding the relations between the intensity and duration of sensation", *Annal. Acad. Sci., Fennicae V. Medica-Anthropol.*, 1956, 58.
9. LLEWELLYN-THOMAS, E., "Successive time estimation during automatic positive feed-back", *Percept. Mot. Skills*, 1959, **9**, 219-224.
10. SIEGEL, S., *Nonparametric statistics for the behavioural sciences*. New York: McGraw-Hill, 1956.
11. STEINBERG, H., "Changes in time perception induced by an anaesthetic drug", *Brit. J. Psychol.*, 1955, **46**, 273-279.
12. STERZINGER, O., "Chemopsychologische Untersuchungen über den Zeitsinn", *Z. Psychol. Physiol. Sinnesorg.*, 1935, **134**, 100-131.
13. STERZINGER, O., "Neue chemopsychologische Untersuchungen über den menschlichen Zeitsinn", *Z. Psychol. Physiol. Sinnesorg.*, 1938, **143**, 391-406.

PSYCHODYNAMIC AND PSYCHOTHERAPEUTIC PROBLEMS IN CONNECTION WITH IMIPRAMINE (TOFRANIL) INTAKE*

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SINCE the preliminary studies in imipramine (Tofranil) (1, 2, 3, 4) demonstrated the potent anti-depressant activity of this substance, attempts have been made to pin-point the differential effects of the drug on psychodynamic structure. These were reported in two previous studies (5, 6). The purpose of the present communication is to elaborate on the information gained in the latter experiments, and their consequent application to the psychotherapy of depressions and other mental syndromes.

METHODOLOGY

This involves what the author has designated as "the hierarchical methodological approach to psychopharmacology" (7). It consists in the considerations of clinical effects concomitant with a drug intake at three levels of observation: behavioural-phenomenological (gross clinical), short term, and long term psychodynamic. The observations begin at the gross clinical level on a large number of patients and are gradually narrowed down to intensive studies of a small number of patients (short term psychodynamic studies) and end in the application of the drug to a very small number of patients under psychoanalytic psychotherapy (long term psychodynamic studies).

Imipramine was studied at all the above three levels, and the present paper is based upon the information gained from these. Briefly considered the methodology could be outlined as follows:

I. Behavioural-phenomenological Level

This involves a relatively simple rating scale for depressive states, which was described previously (4, 5) and was applied to 226 depressed patients.

II. Psychodynamic Level

Ten patients were used for studies at this level. They were 5 men and 5 women with an average age of 35. Diagnostically they consisted of 7 cases of depression of considerable intensity and 3 of character disorders. The latter patients were given Tofranil on a research basis when they developed a depressive phase during their psychoanalytic psychotherapy. Tofranil was administered in a uni-blind way to 7 depressed patients, in a double-blind way to the 3 character disorders, with an average daily dose of 100 mg. The 7 depressed patients received the drug from 3 to 9 months. In 3 patients, who were in

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psychoanalytic psychotherapy, Tofranil was used in a double-blind way as a part of a multiple drug study, including 3 other substances. Tofranil was included in this scheme once for a period involving 10 sessions for 2 patients and 3 times for a period involving 3 sessions each.

III. *Psychotherapeutic Level*

This level was differentiated from psychodynamic level in that the aim was not the detection of change in the psychic structure, but the predictive value of the anti-depressant activities of Tofranil in bringing about a therapeutic result. Ten patients were investigated at this level; 5 cases of moderately severe depression and 5 of other mental syndromes, in whom a latent depression was inferred. The average age of these patients was 35, and the drug was administered with an average dose of 150 mg. daily. In 4 depressed patients the drug was given with the anticipation that the severity of the depression would decrease to allow the undertaking of psychoanalysis. The remaining depressed patient, a woman of 40 years of age, received Tofranil with the aim of diminishing a severely repressed intense feeling of guilt, hampering the progress of psychoanalysis, which was at its 6th year. The 5 overtly non-depressed patients included 2 schizophrenics, 2 alcoholics and 1 case of anorexia nervosa. In all these patients a severe latent depression was inferred from the interview material, and the prediction was made that they would show progress under Tofranil. This prediction was noted beforehand and later compared with the results.

COLLECTION OF DATA

The data were collected during two interview situations:

(1) Supportive situation: This was used for the 7 depressed patients and consisted of phenomenological assessment of the patient's associations with no attempt at uncovering. The patients were seen for an average of twice weekly in sessions lasting from 20 to 45 minutes until the disappearance of the depressive state, and then at long intervals during a follow-up period. Two technical rules were considered in order to minimize the therapeutic effect of interviews as such: (a) Withholding of interpretation and explanations in order to prevent the therapeutic effect of these two procedures; (b) encouragement of free associations in order to obtain the details of phenomenological happenings from which to infer psychodynamic alterations.

(2) Analytic situation: This was the setting of a psychoanalytic psychotherapy, and was applied to the 3 cases of character disorder mentioned before. They were seen for an average of 3 times weekly in 50 minute sessions. They knew that they were going to receive different drugs and they had accepted this. The matter of drug administration was handled as casually as possible and no direct enquiry about the effects of drugs was made.

AREAS OF OBSERVATION

At the behavioural-phenomenological level the only area considered was the depressive symptomatology, the details of which were published elsewhere and will not be dealt with here (4, 5).

At the psychodynamic level the data were grouped under 4 headings: the organization of mood; of ego; of drives; and of object-relations (6).

The mood was divided into 4 states of elation, depression, anxiety and indifference. The organization of ego was considered in this study particularly in regard to the defence of introjection which is taken to be specifically related to the depressive state. The organization of drives was envisaged under the dialectic of libidinal and aggressive impulses. The organization of object-relations was particularly focused on the internal object system of control (super-ego components), which in a psychoanalytic frame of reference is taken to be the point of emphasis of depressive states and can be best studied in considering the individual's feelings of guilt and self-esteem.

It should be explicitly stated that the close connections of the above concepts with each other and the difficulties involved in rating and assessing them were acknowledged.

CRITERIA OF ASSESSMENT OF CHANGE

These have been reported elsewhere (6, 7). Briefly reiterated the criteria are (1) the patient should be taken as his own control. (2) The assessor (observer) should have a full knowledge of the patient's pathology and psychodynamics. Only such an observer can render judgment as to whether or not a change is emergent and unrelated to the on-going psychological processes, i.e., not related to the intervention of a drug. (3) Two qualities of "emergence" and "incomprehensibility" as the sole epistemological index of the relatedness of a change to a given drug. Unless the change appears emergent and incomprehensible to the observer in regard to what he knows about the reactivity and usual mode of responsiveness (conscious and unconscious), it would be inadmissible to attribute it to the introduction of a chemical into the body. (4) Control observer, consisting of a second observer, who evaluates the data independently and compares his conclusions at the end. In the present experiment the control observer had the same theoretical frame of reference as the author. His conclusions were identical and will not be reported separately.

RESULTS

The results will be considered according to three levels of observations.

I. Phenomenological-behavioural Level

At this level the conclusions drawn from the study of 226 depressed patients treated with Tofranil (4, 5) and related to the theme of the present paper, were as follows:

1. An adequate anti-depressant activity is manifested under Tofranil in 80 per cent. of patients (marked and moderately improved).
2. A certain intensity of depressive mood was necessary before Tofranil would have any effect. Mild depressions did not show any change and severe psychotic depressions were most responsive to the drug.
3. The lifting of depression was gradual and in definite stages, beginning with the decrease in feelings of guilt.
4. The change was only a symptomatic relief and temporary. No change in basic personality patterns occurred and the possibility of relapse was always present.

II. Psychodynamic Level

The alteration of psychodynamic states will be envisaged under 4 categories of: mood, drives, ego, and object-relations. This presentation includes the condensations and elaborations of material previously reported (5, 6).

1. *Organization of mood.* Depressed mood was drastically decreased in all 10 patients. In two of these patients (manic-depressives) this mood changed to elation within 3 weeks, and then progressed into hypomanic in one and manic state in the other. The shift in mood was gradual and corresponded to the alterations of drives and internal object-relations.

Of three patients in the double-blind study, one showed relief of depression, one experienced an increase in anxiety in connection with the emergence of intensive aggressivity (see below) and one did not change. This patient's response to Tofranil was nil in all respects. The reason for this seemed to be the intensity of the depression which was quite mild. This observation made under intensive and analytic scrutiny confirmed the impression previously mentioned that unless there is a certain intensity of depressive feelings Tofranil will remain ineffective. This is a paradoxical situation. Logically if a drug can relieve an intense state, it should easily affect states of lesser intensity. The reverse occurs with Tofranil and in fact with many phrenotropic drugs. This observation should have theoretical interest.

2. *Organization of drives.* The primary change seemed to occur in the direction of aggressive drives, from inward to outward. There was a re-canalization of aggressive tendencies from the self to others. This was inferred from statements such as: "I want to do more"; "I feel more active"; "I seem to be able to tell people off"; "I see a transformation in my relations to other people. I am concerned that I might hit somebody . . . I feel like something had suddenly happened to me", etc.,

As a clear example of the emergence of aggressive drives the case of a 40-year-old woman can be cited. This patient came for psychoanalysis because of a life-history of marked sexual and aggressive inhibition. Her behaviour could be summarized in the formula "never get angry, never get sexy". After 6 months of therapy she began to experience some anger in the form of uncomfortable episodes of the following character: "I have noticed that whenever I feel angry . . . my whole body feels as if distended, it feels like something is pushing out, as if I am going to jump out of my skin . . . I feel fidgety . . . I feel like screaming." A few months later she became markedly depressed and anxious subsequent to the therapist's summer holidays. It became evident that this was the repetition of a childhood depressive episode following the accidental death of her mother. She was mourning over the therapist's absence, whom she had in fantasy destroyed, as she had once done with her mother. Because of this depressive episode she was put on Tofranil 3 times. Each time within 3 days she developed attacks identical with the ones mentioned above, indicative of sudden emergence out of the repression of aggressive tendencies. She felt "as if I am going to jump out of my skin . . . something inside is pushing. I come to the point of screaming". In one session during the analysis of these attacks in connection with her "mourning" over the therapist's departure, she became paranoid, suspicious and became aware of an intense desire to hit and kill.

It should be pointed out that the three trials with Tofranil were deliberate, without the knowledge of the patient, and for experimental purposes. The

transitory schizophrenic episode was interpreted as a regression from depressive to paranoid position due to the intense anxiety in connection with the emergence of barely controllable feelings of anger at the therapist.

As for the libidinal tendencies, they seemed to be secondarily affected. This was particularly noted in 4 patients who complained of loss of sexual interest concomitant with depression. This interest returned several weeks after the depression had lifted and the patients had resumed their social activity.

3. *Organization of the ego.* The defence of introjection which was the main focus of observation seemed to be altered in all patients. This conclusion was based upon the following observations: Decrease in guilt feelings (see below), increasing ability to express aggression outwardly. The disappearance of the need to "take in" alcohol and a change from depressive and oral to anal (obsessional) associations in 2 patients. The account of one of the latter patients will illustrate this change. This 29-year-old man had come for psychoanalysis because of marked anxiety while playing the piano. After about six months of treatment he became rather suddenly depressed after he realized that his fantasies about becoming a "great musician" were compensatory mechanisms against his marked feelings of inadequacy and that fact that he was only an ordinary pianist. This narcissistic injury (regressively experienced as an oral object loss) led to the feelings of depression. For three sessions all his associations were depressive: "I am worried that I have not really any talent . . . I am going to lose my career . . . how am I going to make a living? . . . I won't be able to make a living and I will starve", etc. Five sessions after beginning Tofranil he showed rather suddenly a shift in this theme. His associations were "hold back" and about "taking in" in form of prostitution fantasies, i.e., he wished to be penetrated in order to obtain money. He was no longer worried about losing or having lost something, but only to keep whatever he had. In short, a change from oral-depressive to anal-depressive themes seemed to have occurred.

4. *Organization of object-relations.* The main feature in this connection was a change from preoccupation with internal happenings to external happenings. This was concomitant and closely connected with the changes in other dynamic events. The evidence for the changes in object relations in the direction described was as follows: (a) Disappearance or decrease in guilt feelings. This indicates a change from painful considerations of one's own worth ("I am bad") and relentlessness of one's own super-ego to a more satisfactory involvement with the outer world, due to a more adequate appreciation of one's worth and a decrease of the aggressive intensity of the super-ego. ("I no longer feel that I am such an ignoramus," "I am no longer sitting here wrapped up in myself and constantly thinking about what is going on in me; I can go out now, talk to people, do things, and even get mad at my husband.") (b) Disappearance of suicidal tendencies. This indicates a deflection of the anger from inward to outward. (c) Disappearance or decrease of hypochondriacal symptoms. This indicates a deflection from the intense investment of the body to the investment of outer bodies and objects; (d) Increase in concentration, initiative, "outgoingness". One highly intelligent patient pin-pointed this by stating "before I had difficulty in being in the world—to be present; now I can be present in the world, in here".

III. *Psychotherapeutic Level*

This will be considered in two parts in connection with overtly depressed and overtly-not-depressed patients.

1. *Overtly depressed patients.* There were 5 patients in this category. Four of these had been sent for psychotherapy. However, owing to the severity of the depression it was very difficult to initiate a psychotherapeutic movement. The patients were either too guilty to entertain the possibility of a relief, to start to look into their life situation and abide by the fundamental rule of free associations, or felt too uncomfortable to tolerate the postponement of an immediate relief. For these reasons they were put on Tofranil for the sole purpose of decreasing the intensity of their depression and allowing them the ability to tolerate their intense guilt feelings and anxieties until some understanding could be reached into the pathogenesis of their illness. In addition it was seen that their need at the time to incorporate something good was so intense that the offering of interpretation as the relieving tool was not enough, and it was necessary for them to receive a solid good-object, which was going to alleviate their intense guilt feelings. However, due to the intensity of depression and the previous experience noted above about the ineffectiveness of Tofranil in mild depression, it is submitted that the relief of depression in these 4 cases was not due solely to the introjection of a symbolically perceived good object, but to the still problematic anti-depressant action of the drug.

All 4 patients' depression decreased. Two of them resumed psychotherapy and two refused, partly on economical grounds (they wanted just to receive and not give), and partly because they "felt so well that I would rather wait for a while before starting this long term procedure. After all I can wait for understanding".

From the experience with these 4 patients and 2 previously mentioned, it was concluded that (a) Tofranil could be of great assistance in psychoanalysis of depressed patients in that it can reduce the intensity of the depressive mood without the use of E.C.T. to the extent of permitting an analytic relationship to be developed. This became evident in the fifth patient in this group, a 40-year-old chronically depressed patient, who had undergone 2 psychoanalytic treatments with two competent analysts, with a total of 6 years of analysis. Her depression had remained unchanged, and the intensity of guilt feelings seemed to have prevented any progression. Within one month of beginning Tofranil the patient's condition improved markedly. "Better than I have ever felt (she could resume her analysis with much greater success); (b) It can be useful in depressive episodes occurring in patients—particularly borderline—who are under analysis. In these cases the intensity of depression may be so severe that either the patients or relatives may interrupt the treatment.

2. *Overtly not-depressed patients.* There were 5 patients in this category: 2 schizophrenics, 2 alcoholics and one anorexia nervosa. In all of them the psychodynamic and phenomenological evaluation led to the conclusion that a latent, intense depression was the background of the overt symptomatology.

The history of the 2 schizophrenic patients (a man of 30 and a woman of 35) revealed that the schizophrenic picture had become apparent after a severe loss—the accidental death of the fiancée in the first and of the husband in the second patient. The patients had experienced the depressive mood for a very short time (a day or two) and had suddenly plunged into a paranoid

reaction. This was interpreted as a regression from depression to paranoid position due to the intensity of guilt feelings and inability to tolerate it. Projection was used as a way of counteracting introjection. Patients were put on Tofranil with the prediction (based upon the concept of "adequate intensity of depression for responsiveness to Tofranil") that they would show a reversal of schizophrenic features. In both patients this occurred, resulting in marked improvement in one patient and beginning of the mourning and depression in the other. This patient began to feel the depression and would talk about the death of his fiancée for the first time.

The two alcoholic male patients' underlying depression was partly manifest. They both drank alcohol impulsively in order to combat a mounting feeling of depression and "going down". They were put on Tofranil with the prediction that they would respond by not needing the alcohol because the intensity of their depression would be decreased. This prediction was fulfilled in both instances; the patients stopped drinking, they did not experience the need to take in alcohol to wipe out their depression, and they were able to resume their psychotherapy. They have remained "dry" up to this time, i.e., one year after.

The patient suffering from anorexia nervosa, a 35-year-old single female, who came for treatment because she had lost about 40 lb. and could not eat, would not begin any psychotherapeutic approach, because she "was sick and what I want most is to gain weight". Exploration of the case revealed that not eating was an unconscious suicidal attempt, seen as an introversion of her marked sadistic impulses, which had prevented her from any affectionate relationship throughout life. One week after beginning Tofranil she had lost a great deal of her difficulty in swallowing and her choking feeling, was able to eat, gained 10 lb. and started a fruitful analysis.

DISCUSSION AND CONCLUSION

In the foregoing pages an attempt has been made to present a hierarchical methodology at three levels of investigation (phenomenological, psychodynamic and psychotherapeutic) where the effect of imipramine was studied. Concomitant with the administration of this substance the following events seemed to occur in the psychodynamic field: (1) A change in the mood of depression either to the pre-morbid state, or towards elation and mania. It was noted that a certain intensity of depression was necessary for imipramine to have any activity. Slight and "normal" depressions remained unaffected; (2) A decrease in guilt feelings and a change from an undue preoccupation with internal object relations to external object relations. This was connected with the alteration in the dialectic of super-ego relationships; (3) A primary change in the direction of aggressive tendencies from inward to outward; (4) Secondary reorganization of libidinal tendencies. Based upon these conclusions in 5 patients, who were not overtly depressed, but whose symptomatology could be seen either as a regression from a depressive position (2 schizophrenics) or as a defence against (2 alcoholics), or an equivalent of a severe depression (one anorexia nervosa) imipramine was administered on a predictive level. The prediction was realized in all instances and by what could be conceptualized as a decrease in the depressive core an amelioration of clinical picture occurred allowing the undertaking of a fruitful psychotherapy. In general from a psychotherapeutic point of view the impression was that (1) Imipramine is useful in initial stages of psychoanalysis of severe depressions. It may allow a

sufficient decrease in the guilt feelings for a psychoanalytic process to be initiated. (2) Imipramine may be useful in depressive episodes occurring during psychoanalysis of certain cases, particularly border-lines. (3) The drug may also be of benefit in psychoanalysis of so-called "latent depressions" where intense guilt feelings prevent any attempt of reorganization.

From the theoretical point of view two fundamental questions can be raised: (1) How to relate the above mentioned observations and reach an understanding of the effect of imipramine in depressive states; (2) Do these observations contribute to our understanding of depressive states or do they necessitate a change in our conception of them?

It is submitted that psychoanalytic frame of reference provides adequate concepts to render comprehensible both of these questions. Even though several authors have stated that new pharmacotherapies of depression have necessitated a change in our conception of this syndrome, it is the opinion of the author that anticipated or proposed changes are either due to an inadequate consideration of psychoanalytic concepts, or are attempts at reductionism on the part of investigators, who take psychological events as epiphenomena rather than transcendental structures.

In previous publications (5, 6) the mode of action of imipramine was outlined in the psychoanalytic frame of reference. It was submitted that the economical principle of the mind is the one most suited to explain the change noted with the administration of any drug including imipramine. The reason for this is that the economic principle includes the concept of "psychic energy", or "intensity", based upon the premise of drives which have an organic source and can be altered by a clinical substance. The observations reveal that there is no change in the basic personality structure under imipramine (or any drug for that matter). Only the over-emphasis, the intensities of certain sets of functions conceptualized in a structural frame (id—ego—super-ego) are amenable to change. These intensities are in general in two forms: aggressive or libidinal. In connection with depression the intensity is on the internalized system of controlling functions (super-ego components) and appears in the form of over-aggressiveness. The controlling functions are too rigid and harsh in depression and with imipramine they seem to decrease. Hence the mode of action of imipramine can be envisaged in two ways: (1) either it produces change in memory traces of images of controlling parents or their surrogates; or (2) it alters the intensity of these images. The observation that there is no change in basic personality patterns and that a certain intensity of depression is necessary for imipramine to have an effect indicates the plausibility of the second mode of action.

Before closing two additional points should be mentioned: (1) the present study, and in general all psychopharmacological research, seems to indicate the usefulness of economic principles of the mind. Even though the term "energy" is a hypothetical construct in psychoanalysis, Psychopharmacological studies seem to bring conformatory evidence for its heuristic value. (2) The present study, particularly in not overtly depressed patients, made the inference possible that depression, as such, is a central point, a unity of experience from which progression—regression movement can ensue. This seemingly core-experience alterable specifically by a chemical substance may indicate what recent developments in psychoanalysis have demonstrated, i.e., the central position of depressive experience in the development of the individual (8).

SUMMARY

The effect of imipramine on depressive states was presented and a hierarchical methodology outlined, where the drug action was studied at three levels: phenomenological, psychodynamic and psychotherapeutic. From a psychodynamic point of view the following events seem to occur concomitant with imipramine: (1) A change in the mood of depression either to the pre-morbid state, or towards elation and mania. (2) A decrease in guilt feelings and a change from an undue preoccupation with internal object relations to external object relations. (3) A primary change in the direction of aggressive tendencies from inward to outward. (4) Secondary reorganization of libidinal tendencies.

The mode of action of imipramine could be conceptualized as the induction of an economic shift in the aggressive cathecting energies of internalized systems of control (super-ego components) resulting in a primary reorganization of aggressive object relations, a secondary reorganization of libidinal object relations, and subsequent relief of depressive state.

Based upon the above conclusions the drug was given to 5 not overtly depressed patients on a predictive level and the following conclusions reached: (1) Imipramine is useful in the initial stages of psychoanalysis of severe depressions; (2) it is useful in depressive episodes occurring during psychoanalysis; and (3) it may be used beneficially in "latent depressions" where intense guilt feelings prevent the setting in of psychoanalytic processes.

BIBLIOGRAPHY

1. KUHN, R., "The treatment of depressive states with an Iminodibenzyl derivative (G-22355)", *Schweiz. med. Wchnschr.*, 1957, **87**, 1135-1140.
2. AZIMA, H., & VISPO, R., "Imipramine, a potent new anti-depressant compound", *Am. J. Psychiat.*, 1958, **115**, 245-246.
3. LEHMANN, H., CAHN, C. H., & DE VERTEUIL, R. L., "The Treatment of Depressive Conditions with G-22355", *Canad. Psychiat. A. J.*, 1958, **3**, 155.
4. AZIMA, H., "Imipramine (Tofranil). A new Drug for the Depressed", *Canad. Med. Ass. J.*, 1959, **80**, 535-540.
5. AZIMA, H., & VISPO, R., "Effects of Imipramine (Tofranil) on Depressive States", *A.M.A. Arch. Neurol. & Psychiat.*, 1959, **81**, 658-664.
6. AZIMA, H., "Some methodological points in psychodynamic studies during pharmacotherapy", *Biopsyche* (in press).
7. AZIMA, H., AZIMA, FERN J., & DUROST, H., "Alteration of schizophrenic dynamic structure concomitant with Reserpine administration", in *Biological Psychiatry*, 1959, pp. 244-258. Grune & Stratton Inc.
8. KLEIN, MELANIE, "A contribution to the psychogenesis of manic-depressive states", in *Contribution to Psychoanalysis*, 1950, pp. 282-311. London: Hogarth Press.

CLINICAL STUDIES OF A NEW BARBITURATE (NEALBARBITONE)

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BRANDSTRÖM (1957) in Sweden, has recently resolved certain problems in the synthesis of barbiturates with a neopentyl group as one of the ring substituents and the resulting compound 5-allyl-5-neopentyl-barbituric acid* has been subjected to experimental studies which show it to be less hypnotic and anaesthetic than amylobarbitone or pentobarbitone sodium and yet protective to rats subjected to a stress situation after the technique of Jacobsen and Sonn  (1955). The drug is rapidly absorbed after oral administration, and has a duration of action between that of amylobarbitone and phenobarbitone.

A preliminary clinical report by Ryde (1959) suggested it might be a useful sedative for the treatment of anxiety, and some comparison seemed, therefore, indicated between nealbarbitone and amylobarbitone sodium, which has already been shown to be effective in the symptomatic treatment of neurotic anxiety in a number of controlled trials (Raymond *et al.*, 1957; Scott, 1955; Robin, 1959).

When considering treatment by barbiturates it must be remembered that 447 suicides in England and Wales of a total of 4,754 in 1953 were caused by "poisoning by analgesic and soporific substances" (Registrar General, 1954), and in the United States, even in the mid-thirties, 6 per cent. of suicides and 18 per cent. of accidental deaths of Metropolitan Life Insurance policy-holders were caused by barbiturates (Curran, 1944).

Death in the greatest proportion of barbiturate intoxications follows a period of coma and some thought has been given to combining barbiturates with an antidote (Gershon and Shaw, 1957; Trautner *et al.*, 1957) in order to prevent or lighten the depth of coma. A barbiturate which retained therapeutic activity in the sedative sense but which made it more difficult for the unco-operative recipient to produce coma would clearly represent a major advance. The following trial was designed to examine the possibility that nealbarbitone is such a drug.

METHOD

The drug was examined to assess its therapeutic properties in comparison with amylobarbitone sodium and its hypnotic properties in comparison with amylobarbitone sodium or pentobarbitone.

* Now available in Great Britain as "Censedal" brand nealbarbitone.

A "double blind" cross-over trial was conducted in out-patients diagnosed as suffering from anxiety states. Patients entered the trial in random order determined by the spin of a coin and received either amylobarbitone sodium grain 1 t.i.d. or nealbarbitone grain 1 t.i.d. for one week. The tablets were identical in appearance and only the pharmacist was aware of the actual drug used on any patient during the observation period.

At the end of a week the patients were changed over to the drug they had not received and continued this for a further week.

Each patient was examined at an initial interview and actuarial data, the diagnosis, prognosis rating (Davies and Shepherd, 1955), an impression of intellectual capacity, and symptom scores were recorded. Patients were re-examined at the end of a week and a fortnight. A note was made of any outstanding situational changes—beneficial or otherwise—and, in the case of premenopausal women, of the phase of the menstrual cycle.

At the third interview the patient was asked a sequential question: "In which of the last two weeks did you feel the better?" The trial was terminated on the basis of the results of the sequential test (Bross, 1952).

As far as the hypnotic effect of the drug is concerned, a trial was conducted in the EEG Department at Runwell Hospital and the attempt was made to produce sleep for sleep recording comparing in each patient on different days, sodium amylobarbitone or sodium pentobarbitone with nealbarbitone. A one to one dosage ratio was normally used when the comparison was with amylobarbitone and a two to one ratio when the comparison was with pentobarbitone. Thus grains 6 nealbarbitone was normally compared with grains 6 amylobarbitone sodium or grains 3 pentobarbitone. In a few cases a much higher ratio was used and as much as grains 18 nealbarbitone were administered. Assessment of sleep in these recording sessions was based on observation as well as on the appearances of EEG changes. A fuller study of the EEG effects of the drug is in preparation.

GROUP MATCHING IN OUT-PATIENT TRIAL

In this trial 20 patients were treated and the question arises whether these are typical anxiety states whose response to treatment might be predicted. In fact, the symptoms scored were the 23 most commonly reported in a previous trial (Robin, 1959) comparing pecazine and amylobarbitone in which a total of 51 symptoms were examined. It was thus possible to compare the symptom scores of the two groups of patients—21 from the first trial and 20 in this trial—and no significant differences were found in the distribution of symptoms (Table I) although the patients in the current trial showed slightly fewer symptoms. As the patients in the trial comparing amylobarbitone sodium and pecazine showed a good response to amylobarbitone as quite distinct from pecazine it might be expected that the patients in this trial would behave likewise. The actuarial and other data (Table II) however suggest that there were fewer patients above average intelligence in the present trial and that these patients also had a longer duration of illness. They might in general, therefore, respond less well and the prognosis rating also suggested this.

RESULTS

Out-patient trial: The sequential test required 20 patients to show that, in general, the drugs—amylobarbitone sodium and nealbarbitone—were equally useful (Figure 1). In addition, four patients had withdrawn and one

TABLE I
Comparison of Symptoms in 41 Patients Before Treatment from a Previous Trial (Robin, 1959) and Current Study

				Trial 1 (Robin 59) No. of Patients	Trial 2 (Present study) No. of Patients
Total patients	..	..	..	21	20
Tremor	..	..	..	13	8
Fidgety	..	..	..	20	13
Muscle Twitching	..	..	..	8	7
Headache	..	..	..	14	13
Muzziness or Pressure	..	..	..	15	12
Tension, Strung Up, Anxious, Unrelaxed	..	..	..	21	20
Could Scream or Smash	..	..	..	16	14
Could Cry	..	..	..	20	16
Can't get off to sleep	..	..	..	13	11
Sleep broken or restless	..	..	..	15	9
Dreaming more	..	..	..	11	4
Poor Concentration	..	..	..	16	17
Loss of Interest	..	..	..	14	13
Loss of Pleasure	..	..	..	16	13
Fatigue: Lassitude	..	..	..	16	16
Irritable or Excitable	..	..	..	17	17
Worrying about trivialities	..	..	..	18	15
Ideas of reference	..	..	..	14	7
Phobias: Insanity	..	..	..	11	8
Dry mouth	..	..	..	14	14
Loss of Libido	..	..	..	12	16
Dyspepsia	..	..	..	11	7
Sweating	..	..	..	13	11

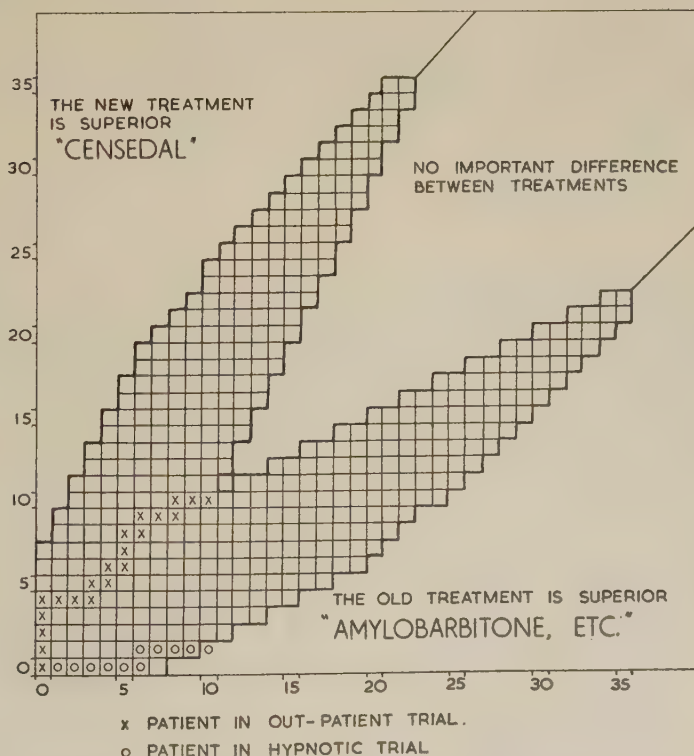


FIG. 1.—Sequential graph showing preferences in out-patient and hypnotic trials.

TABLE II

Actuarial and Other Data on 41 Patients from a Previous Trial (Robin, 1959) and Current Study

				Trial 1	Trial 2
Sex:					
Female	..	..	..	15	12
Male	..	..	..	6	8
Age in years:					
<30	..	..	..	11	7
31-50	..	..	..	9	13
>50	..	..	..	1	0
Civil State:					
Married	..	..	..	19	18
Separated	..	..	..	—	1
Single	..	..	..	2	1
Precipitant:					
Domestic	..	..	..	11	9
Illness	..	..	..	2	7
Housing	..	..	..	1	2
Finance	..	..	..	2	1
Work	..	..	..	5	1
Prognosis:					
Rating 1	..	..	..	10	2
2	..	..	..	8	9
3	..	..	..	3	9
Duration of illness:					
<1 year	..	..	..	13	5
1-2 years	..	..	..	3	5
>2 years	..	..	..	5	9
Not stated	..	..	..	0	1
Clinical assessment of Intelligence:					
+	..	..	..	9	3
Average	..	..	..	10	13
—	..	..	..	2	4
Night sedation prescribed	..	..	..	12	8

been withdrawn from the trial. These were on amylobarbitone in four cases and nealbarbitone in one case.

The symptom scores appear to confirm the global assessment (Table III). The number of symptoms appearing one-third less frequently in the first week's treatment were 10 of 23 in the amylobarbitone treated patients and 8 of 23 in the nealbarbitone treated patients. Of 170 symptoms reported before nealbarbitone, 52 were not reported after it (31 per cent.) whereas of 119 before amylobarbitone, 46 were cleared (26 per cent.).

If the number of patients showing symptoms after one week's treatment with nealbarbitone or amylobarbitone (regardless as to whether this was in the first or second week of the trial) is recorded (Table IV) again the drugs are seen to be comparable, any advantage being with nealbarbitone.

Two factors were examined to see what influence they may have had on the results—the phase of the menstrual cycle, where this was applicable, and situational changes. The pre-menstrual and menstrual periods—the significance of which Dalton (1959) refers to, occurred in roughly equal numbers receiving nealbarbitone and amylobarbitone so that neither drug could be said to have suffered any disadvantage (Table V).

TABLE III
*Group Symptom Scores in 20 Out-Patients Treated with
 Amylobarbitone and Nealbarbitone*

Week	..	..	..	0	1	2	0	1	2
Drug*	..	..	..	Nil	N	A	Nil	N	A
Number of Patients	..	..	..	12	12	12	8	8	8
Tremor	..	..	..	5	3	5	3	4	4
Fidgety	..	..	..	8	6	9	5	5	4
Muscle Twitching	..	..	..	2	2	2	5	3	3
Headache	..	..	..	9	7	9	4	5	6
Muzziness or Pressure	..	..	..	6	8	5	6	7	6
Tension, Strung Up, Anxious,									
Unrelaxed	..	..	..	12	8	10	8	6	6
Could Scream or Smash	..	..	..	8	7	5	6	2	2
Could Cry	..	..	..	9	6	8	5	5	6
Can't get off to sleep	..	..	..	7	3	5	4	1	1
Sleep broken or restless	..	..	..	5	4	6	4	5	3
Dreaming more	..	..	..	1	2	2	3	3	2
Poor Concentration	..	..	..	11	6	7	6	4	3
Loss of Interest	..	..	..	8	7	7	5	4	3
Loss of Pleasure	..	..	..	7	6	8	6	3	7
Fatigue: Lassitude	..	..	..	9	8	9	7	6	5
Irritable or Excitable	..	..	..	10	8	9	7	4	3
Worrying about trivialities	..	..	..	9	8	8	6	5	6
Ideas of reference	..	..	..	4	4	3	3	2	1
Phobias: Insanity	..	..	..	5	2	4	3	2	2
Dry mouth	..	..	..	8	5	7	6	5	6
Loss of Libido	..	..	..	8	8	9	8	5	7
Dyspepsia	..	..	..	3	4	3	4	3	3
Sweating	..	..	..	6	3	5	5	3	4

* N=Nealbarbitone.

A=Amylobarbitone.

TABLE IV
*Group Symptom Scores After One Week's Treatment with Amylobarbitone and
 Nealbarbitone*

			Before treatment	After neal- barbitone	After amylo- barbitone
Total number of points	..	..	20	20	20
Tremor	..	..	8	7	9
Fidgety	..	..	13	11	13
Muscle Twitching	..	..	7	5	5
Headache	..	..	13	12	15
Muzziness or Pressure	..	..	12	15	11
Tension, Strung Up, Anxious, Relaxed	..	..	20	14	16
Could Scream or Smash	..	..	14	9	7
Could Cry	..	..	16	11	14
Can't get off to sleep	..	..	11	4	6
Sleep broken or restless	..	..	9	9	9
Dreaming more	..	..	4	5	4
Poor Concentration	..	..	17	10	10
Loss of Interest	..	..	13	11	10
Loss of Pleasure	..	..	13	9	15
Fatigue: Lassitude	..	..	16	14	14
Irritable or Excitable	..	..	17	12	12
Worrying about trivialities	..	..	15	13	14
Ideas of reference	..	..	7	6	4
Phobias: Insanity	..	..	8	4	6
Dry mouth	..	..	14	10	13
Loss of Libido	..	..	16	13	16
Dyspepsia	..	..	7	7	7
Sweating	..	..	11	7	8

TABLE V

Phase of Menstrual Cycle During Trial

Week of cycle	Nealbarbitone treatment period	Amylobarbitone treatment period	First week of trial	Second week of trial
1	2	4	2	4
2	3	2	3	2
3	4	5	6	3
4	6	4	4	6

All the positive situational changes occurred in the first week of the trial and distributed equally among both drug groups. The disadvantages appeared later and again the distribution was to both drugs (Table VI).

TABLE VI

Situational Changes During Trial

	Nealbarbitone treatment period	Amylobarbitone treatment period	First week of trial	Second week of trial
Situational Changes:				
Advantageous	2	2	4	0
Disadvantageous	2	1	1	2

As was anticipated the effect of the drugs is not as marked as that of amylobarbitone in the first trial where the mean symptom score was reduced from 16.2 to 10.8 in two weeks. Here the reduction for the whole trial was from 13.9 to 11.9. Nevertheless, using the Wilcoxon Matched-Pairs Signed-Ranks Test (Seigel, 1956) on the differences in each individual patient's total symptom score before and after one week's treatment with nealbarbitone shows these to be significant at the 1 per cent. level of confidence ($N=19$; $T=26$; at $P=0.01$; $T=32$). Amylobarbitone produces differences which just fail to be significant at the 5 per cent. level of confidence with the two tail test ($N=20$; $2=52.5$; at $P=.05$; $T=52$) but *are* significant with the one tail test which would apply in this case.

No major toxic symptoms were observed. Side-effects of the drugs might be included in symptoms which were not reported before the particular drug was administered but reported thereafter. In the first week the 12 nealbarbitone treated patients reported 13 such symptoms and the 8 amylobarbitone patients 17. Considering the whole trial 35 new symptoms were reported after nealbarbitone and 57 after amylobarbitone. Four individual symptoms appeared more frequently in the amylobarbitone group—including tremor which was reported in the last trial—and only one, muzziness, in the nealbarbitone group.

EEG DEPARTMENT TRIAL

The sequential test required twelve patients to show that amylobarbitone or pentobarbitone were significantly ($P=0.01$) more hypnotic than nealbarbitone in the doses used (Figure 1). In one case grains 18 of the latter drug failed to produce any evident change of awareness, in one case grains 15 failed to produce any change and in a further case grains 15 produced only drowsiness; grains 9 was used on three occasions producing sleep, drowsiness and no change respectively. Grains 6 of the drug produced sleep on only one occasion.

CONCLUSION

In a small group of anxiety states treated as out-patients nealbarbitone is shown to be comparable in therapeutic activity to amylobarbitone sodium in the same dosage and to be therapeutically effective. The group as a whole were, although comparable in symptoms, of poorer outlook than a previously treated group and responded less well to treatment. No major toxic symptoms were observed and fewer new symptoms (possible side-effects) followed nealbarbitone than amylobarbitone. A trial with the drugs and pentobarbitone used as hypnotics by day, with observers present, and with EEG records of sleep showed that nealbarbitone is significantly less hypnotic than the other drugs.

It is thus suggested that nealbarbitone is a therapeutically active sedative drug with low hypnotic activity. It seems desirable to repeat and attempt to confirm these results on a larger scale.

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REFERENCES

- BRANDSTRÖM, A., *Proc. XVIe Cong. pure appl. chem.*, 1957, **2**, 298.
BROSS, I., *Biometrics*, 1952, **8**, 188.
CURRAN, F. J., *J. Nerv. Ment. Dis.*, 1944, **100**, 142.
DALTON, K., *Brit. Med. J.*, 1959, **1**, 148.
DAVIES, D. C., and SHEPHERD, M., *Lancet*, 1955, **2**, 117.
GERSHON, S., and SHAW, F. H., *Brit. Med. J.*, 1957, **2**, 1509.
JACOBSEN, E., and SONNÉ, E., *Acta Pharmacol. et Toxicol.*, 1955, **11**, 135.
RAYMOND, M. J., *et al.*, *Brit. Med. J.*, 1957, **2**, 63.
REGISTRAR GENERAL, *Statistical Review of England and Wales for the Year 1953*, Part 1, Medical, 1954. London: H.M.S.O.
ROBIN, A. A., *J. Ment. Sci.*, 1959, **105**, 1064.
RYDE, C., *Svenska Läkartidningen*, 1959, **56**, 260.
SCOTT, P. A. L., *J. Ment. Sci.*, 1955, **101**, 163.
SEIGEL, S., *Non Parametric Statistics*, 1956, New York: McGraw-Hill.
TRAUTNER, E. M., *et al.*, *Brit. Med. J.*, 1957, **2**, 1514.

A DOUBLE-BLIND TRIAL TO INVESTIGATE THE EFFECTS OF THORAZINE (LARGACTIL, CHLORPROMAZINE), COMPAZINE (STEMETIL, PROCHLORPERAZINE) AND STELAZINE (TRIFLUOPERAZINE) IN PARANOID SCHIZOPHRENIA

By

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In the early phenothiazine literature the ataractic properties of Thorazine in the control of disturbed, hyperactive schizophrenics were described (Kurland, 1955; Hall and Dunlap, 1955; Lehmann, 1955). Kurland (1955) gives an excellent description of the powerful activity of Thorazine in this sphere, namely the control of hyperkinesis and hostile, aggressive behaviour; however, he found that there was little basic change in delusional thought disorder other than to divorce the abnormal thinking from its affective attachment. It was noted that the clinical improvement was most dramatic when the affective component of the illness was most marked. Hall and Dunlap (1955) felt that there was significant reduction in delusional ideation but noted that the schizophrenic process was not affected by Thorazine medication.

With Compazine (Stemetil) stress was laid on different spheres of therapeutic activity, namely in the control of abnormal thought content and in influencing psychomotor activity. Compazine was reported as having active therapeutic properties in the amelioration of delusional ideation and hallucinations (Milne and Berliner, 1958; Denham, 1958; Winkelman, 1959). It would appear that Compazine has the dual ability to inhibit hyper-motility and to stimulate activity in the underactive patient. Freyhan (1958) found that it had a highly selective action in hyperkinetic syndromes, but other authors (Milne and Berliner, 1958 and Frierson, 1958) found it equally effective in counteracting dull, withdrawn, apathetic, asocial and negativistic behaviour. In a comparative study of chlorpromazine (Thorazine-Largactil) and prochlorperazine (Compazine-Stemetil), Dransfield (1958) found these drugs equally effective in controlling hostile, aggressive, hyperactive behaviour; however, he found chlorpromazine superior to prochlorperazine in counteracting apathy. It would appear that few toxic side-effects, for example bone marrow and liver toxicity (Wilcox, 1955), have been recorded with Compazine and it also had the advantage of producing less somnolence than Thorazine. The predominant side-effects were

extra-pyramidal in nature (Freyhan, 1958; Frierson, 1958; Wilcox, 1955; Pennington, 1959; Goldman, 1958; and Denber, 1958). The extrapyramidal signs recorded are diverse, fine tremors, dystonic muscular spasms, akathisia and frank Parkinsonism. Goldman (1958) felt that extrapyramidal signs were an essential index of the therapeutic activity of the phenothiazine; this view is supported by Denber (1958) who reported that relief of symptoms correlated with the appearance of extrapyramidal signs.

Stelazine, one of the most recent of the drugs to be released for therapeutic use, is reported to have an extremely potent action in small dosage in alleviating schizophrenic delusional ideation and perceptual distortion (Rudy *et al.*, 1958; MacDonald and Watts, 1959; Madgwick *et al.*, 1958; Hanlon *et al.*, 1958; and Feldman, 1958). Its potency as an activator of withdrawn, apathetic, regressed schizophrenics has also been reported. (Barsa *et al.*, 1959; Tolan and Peppel, 1959). Activation was often sufficiently marked to allow reasonably good adjustment to the social milieu. As with Compazine, the incidence of extrapyramidal phenomena was high. (Rudy *et al.*, 1958; MacDonald and Watts, 1959; and Forrester, 1958).

To summarize, it would appear that there are several basic trends in the evolution of the phenothiazines under review. Firstly, the drugs are becoming much more potent in much smaller dosages and secondly, they appear to be becoming much more specific in alleviating the primary thought, emotional and behavioural disorders in schizophrenia.

On the assumption that these drugs had a differential therapeutic effect in the alleviation of schizophrenic symptomatology, it was decided to conduct a double-blind drug trial in a small group of selected paranoid schizophrenics where the movement of symptoms could be studied in some detail.

METHOD

In order to make the interpretation of results of this drug study more accurate and meaningful, the method of experimentation is described in some detail with special reference to selection of patients, physical environment and mode of drug administration. This descriptive method coincides to a large extent with the recommendations of a special committee for reporting drug studies. (U.S. Public Health Reports, 1957).

I. SELECTION OF PATIENTS

An attempt was made to match the patients both historically and in clinical symptomatology. The sample was selected according to diagnosis, sex, age, intelligence, length of illness and length of hospitalization. (See Table I.)

Eight female patients were selected with the diagnosis of paranoid schizophrenia; the diagnosis had been defined by case assessment at formal medical staff conference. The selection was made from a hospital service composed mainly of intermediate-stay patients—i.e., those who had failed to respond satisfactorily to the initial three months' intensive therapy following admission to hospital.

Before selection each case was reviewed in an attempt to obtain homogeneous clinical material which might reflect a similar disease process in each case. The main clinical criteria for selection were (1) Florid, easily elicited delusions of persecution, reference and influence. (2) Clinical evidence or history of auditory hallucinations. (3) No gross disorders of behaviour unless secondary to delusional ideation. (4) Minimal disorder of affect in the nature of inappropriate emotional expression. (All of the patients, however, showed a degree of

TABLE I

Name	Sex	Age	Length of Illness	Previous Hospitalization	Length of Hospitalization	Intelligence Quotient (WAIS)	Family History
L. D.	F	39	4 years	One	4 months	87	Maternal Great Uncle Epilepsy
R. A.	F	30	2 years	One	6 months	96	Paternal Uncle Mental Deficiency
M. I.	F	33	18 months	None	2 months	96	Maternal Aunt Schizophrenic
D. S.	F	31	3 years	None	8 months	94	Maternal Aunt Sydenham's Chorea
E. H.	F	26	11 months	One	11 months	89	Paternal Uncle Schizophrenic
P. H.	F	33	7 years	Two	6 months	92	Nil available
M. A.	F	37	9 months	One	6 months	102	Paternal Grandmother Schizophrenic
R. E.	F	32	3 years	One	24 months	85	2 Paternal Aunts Schizophrenic 1 Brother—Schizophrenic
Mean		32.6	33 months		8.1 months	92	

flattening of affect, but could mobilize adequate affect especially when taxed regarding their delusional ideation). (5) All patients retained sufficient personality integration to adjust satisfactorily to the social aspects of the mental hospital milieu and were able to take advantage of the facilities for occupational and recreational therapy.

From data on Table I, it can be seen that seven of the eight patients were in the fourth decade. Their ages ranged from 26–39 years with a mean age of 32 years (S.D. 3·7). The length of illness was assessed historically from the date of the first appearance of symptoms of morbid personality trends. The mean duration of illness was 33 months with a minimum of 11 months and a maximum of 7 years. The mean duration of present stay in hospital was 8·1 months, with a range from 2 months to 24 months. As regards intelligence, the group ranged from I.Q. 85 to I.Q. 102, with a mean of 92 (S.D. 5). Measurement of intelligence was done by the W.A.I.S. in the preliminary week of the study. Previously, patients of very low intelligence had been excluded, mainly for two reasons; firstly, they would be unable to give a satisfactory commentary on subjective symptomatology and secondly, they would be unable to attempt the "Clyde Mood Scale" on account of their intellectual deficit. It is of some importance to appreciate that these I.Q.'s were probably excellent reflections on the functional intelligence of the patients at the time of testing, but do not accurately reflect the premorbid intellectual capacity of the individuals in the group. The data on family history was obtained by the retrospective survey of the case-records of the group and were not used for inclusive or exclusive criteria in the original sampling. However, it is interesting to note that all but one had a positive family history and four had a definitive family history of schizophrenia. Perlin and Russell Lee (1959) have recently indicated the possible importance of schizophrenic family history as a method of selection of a small group of schizophrenics for biological studies. The family history picture of the patients in this study, although purely fortuitous, may be highly relevant in the ultimate interpretation of results. The rather mixed nature of the familial neuropathies would appear to rule out a common genetically determined disease process, but might have some bearing on the malignancy of the pathological picture. Thus, the study might be interpreted as a comparative study of the effect of these drugs in the modification of descriptively similar symptoms, quantitatively, but not qualitatively, the same.

II. ENVIRONMENT

In recent papers more attention has been given to significant non-psychopharmacological variables which might be of importance in research on the psychopharmacological drugs. Sherman (1959) classifies the important variables into drug variables, situational variables and person variables. In the present drug trial, no particular attempts were made to measure anything other than drug effect; however, it would appear pertinent to include a perfunctory description of the ward-setting and the salient features in the staff (aide) attitudes to psychiatric problems.

During the period of research the patients were congregated on one ward of nineteen beds. They were thus subjected to similar physical environment. The normal function of the ward was the treatment of acutely disturbed patients from other areas of the service. Thus, eight beds were used for research and eleven beds for the usual function of the ward. Being a disturbed ward, the ward facilities for recreational and occupational therapies were minimal,

however, a television was available. On the ward, patients generally spent their time television-viewing or playing cards and other indoor games. During the experimental period the patients were granted maximum privileges as regards recreational and occupational therapies and parole within the limits of their mental conditions.

As a history from the aides on current patient social adjustment formed an essential part of the daily rating scale assessment, it might be relevant to point out that the aide staff, who were inured to dealing with disturbed patients, tended to be quite benign and sympathetic in their attitudes to "out-going" behaviour. This may have been an influential factor in biasing day-to-day rating scale assessment.

III. DRUG ADMINISTRATION

The experiment was conducted according to the double-blind method of study. Clinically, one physician was responsible for the administration of drugs and for the investigation and treatment of any side-effects which might occur. A second physician was responsible for the day-to-day assessment of psychiatric progress.

(a) *Drugs*

Three drugs, Thorazine (Largactil), Compazine (Stematil) and Stelazine and a placebo were used in the experimental plan. These drugs were each administered in two phases as regards dosage; one dosage was within the moderate range, the other dosage was considered to be sufficiently large to cause maximum movement in psychiatric symptomatology and perhaps also produce toxic side-effects. For dosage scale, see Table II.

TABLE II

	Drug				Moderate Dosage Mg. Daily	Large Dosage Mg. Daily
Thorazine	..	..	..	..	150	450
Compazine	..	..	..	..	30	90
Stelazine ..	..	..	..	..	15	30

(b) *Administration of Drugs*

The patients received their medication thrice daily. (7.00 a.m., noon, 6.00 p.m.). The drugs and placebo were dispensed in identical pink capsules by Smith, Kline & French.

(c) *Statistical Plan*

The project was carried out over a period of nine weeks. The first week was preliminary to the administration of drugs. This was a period of observation when the patients were continued on their usual hospital medication. An attempt was made to establish a base-line of "average" behaviour and adjustment to the ward environment. Scores from this week are not included in the analysis. Thereafter, the drug administration began. Drug and dosage was changed weekly on Saturday morning. During the eight weeks period of drug administration each patient had one week's administration of each drug in each of the dosage phases and two weeks placebo. (See Table III for plan of drug administration.)

TABLE III
Administration of Drugs and Observed Responses
Week

Patient	1	2	3	4	5	6	7	8
1	P1 148.0	P2 130.0	T1 131.5	T2 107.5	S1 62.0	S2 68.0	C1 62.0	C2 88.5
2	P2 139.0	P1 133.0	T2 104.5	T1 105.5	S2 94.0	S1 79.0	C2 76.5	C1 98.0
3	T1 102.5	T2 88.5	P2 88.0	P1 109.5	C1 66.0	C2 75.0	S1 65.0	S2 88.5
4	T2 109.5	T1 92.5	P1 81.5	P2 76.5	C2 103.0	C1 65.5	S2 62.5	S1 67.5
5	S1 137.5	S2 126.0	C1 97.5	C2 125.0	P1 143.0	P2 147.0	T1 124.0	T2 129.5
6	S2 115.0	S1 122.5	C2 103.5	C1 107.5	P2 92.5	P1 106.0	T2 119.0	T1 95.5
7	C1 122.5	C2 163.0	S1 102.0	(Patient refused capsules)			P2 90.0	P1 108.5
8	C2 124.0	C1 99.5	S2 108.5	S1 121.0	T2 138.0	T1 113.5	P1 153.5	P2 167.0

Drugs		
T1—Thorazine	150 mg.	daily
T2—Thorazine	(Largactil) 450 mg.	daily
S1—Stelazine	15 mg.	daily
S2—Stelazine	30 mg.	daily
C1—Compazine	30 mg.	daily
C2—Compazine	(Stemetil) 90 mg.	daily
P1—Placebo	Inert Substance	(Superscripts
P2—Placebo	Insert Substance	artificially imposed)

IV. PSYCHIATRIC ASSESSMENT

Both objective and subjective methods were employed in psychiatric assessment. Clinical assessment was done between the hours of 10.30 a.m. and 12.0 noon, Monday through Friday. No assessment was done on Saturday or Sunday.

(a) Objective Assessment

Objective assessment was done by use of the rating scales devised by Malamud and Sands (1947). The patient's symptomatology is scored under nineteen headings covering various aspects of thought emotion, behaviour and conduct. The more deviant the assessment of the patient in an individual item, the higher is the score. The maximum score per item is six points. The total score from all items reflects the patient's pathological deviation from the "statistical normal". Two modifications of the original technique were used in this experiment. Firstly, the item "sexuality" was omitted: it was felt that the artificial homosexual environment of the hospital ward annulled the usefulness of this score. Secondly, premorbid personality profiles were not prepared for comparison of movement of patient's scores. The deviant scores recorded thus reflected deviation from the hypothetical statistically average individual.

(b) Subjective Assessment

The "Clyde Mood Scale" was used in subjective assessment. This test was administered daily following clinical assessment, according to the standardized

formal instructions. This test of 133 items, namely adjectives pertaining to emotional make-up, requires the testee to sort the cards into different columns headed "not at all", "a little", "quite a bit", and "extremely". The sorted cards are scored by machine. The results are analysed under six headings, namely, "friendly", "energetic", "clear-thinking", "aggressive", "jittery" and "depressed".

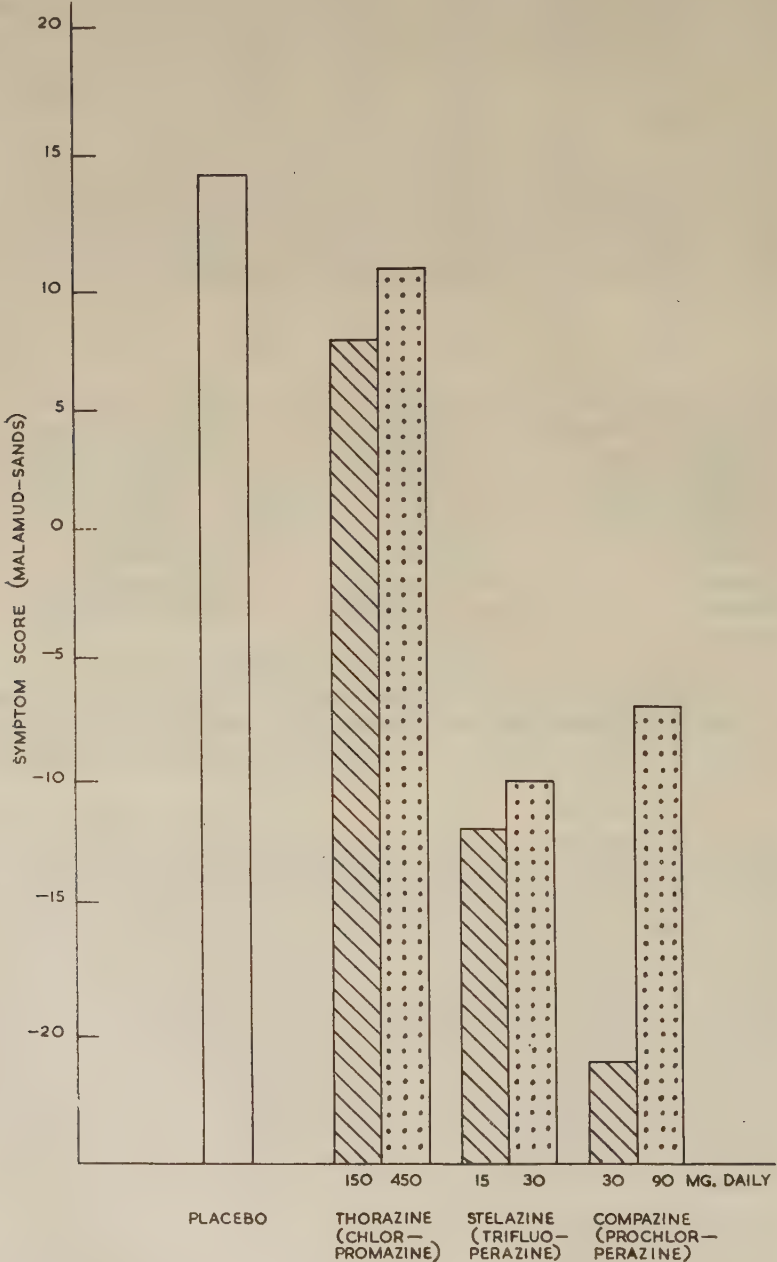


FIG. 1.

RESULTS

The relative effectiveness of the various drug treatment methods is shown in Figure 1. On this graph the zero line is an overall mean of psychopathology as measured by the Sands-Malamud Scale. The height of the column reflects the degree of psychopathology observed. Individual weekly Sands-Malamud Scores are included in Table III.

It is apparent that Stelazine and Compazine (Stemetil) are definitely superior to the placebo in control of symptoms. By an analysis of variance (Table IV) it is found that this superiority of Compazine and Stelazine to placebo could have occurred by chance less than one time in a hundred.

TABLE IV
Analysis of Variance

Source of Variation	S.S.	D.F.	M.S.	F
Weeks (adj. for drugs) ..	4,971	7	710.1	3.36*
Patients	16,263	6	2,710.5	12.82*
Drugs (adj. for weeks) ..	9,391	7	1,341.6	6.35*
Error	7,401	35	211.5	
Total	38,317	55		

* $P < .01$.

There is some suggestion that the lower dose of Compazine, 10 Mg. t.i.d., is superior to 30 Mg. t.i.d. The data on this dosage from this experiment is, however, only suggestive and not conclusive.

Thorazine (Largactil) occupies an intermediate position, tending to be better than the placebo and not so effective as Stelazine and Compazine. The differences between Thorazine and placebo and Thorazine and the other two drugs did not fall within the usual 5 per cent. level of confidence of excluding chance, but this might occur with a larger sample.

A Chi Square analysis was done on the *individual items* of the Sands-Malamud Scale comparing the placebo ratings with the 10 mg. t.i.d. Compazine ratings (the best results obtained). In this item analysis the placebo group in all instances displayed the greatest psychopathology. There was a rather obvious arrangement with the behavioural and affective items tending to be highly different with Compazine and the "thought" items essentially the same with Compazine and placebo. For example, the items Socialization, Responsivity and Speech were the top items displaying a difference between Compazine and placebo. These were followed by Affect, Feeling and Mood. By contrast, such items as Thought Content and Thought Processes were insignificantly different when the patients received Compazine.* We believe this result may in part be due to the fact that the Sands-Malamud Scale is probably better for detecting changes in behaviour and mood other than in thought processes. We would, however, like to call attention to the observation that in our experiment none of the drugs appeared to have an appreciable effect on psychotic thinking. Our early expectations were, therefore, not substantiated, that is, when measured by the Sands-Malamud Rating Scale.

* An item analysis of the Sands-Malamud Scale with 35 placebo ratings vs 35 Compazine 10 Mg. ratings shows the following Chi-Square values (in each instance the placebo being higher): socialization 7.67, responsivity 7.23, speech 5.79, affect 5.71, feeling 5.37 and mood 4.35. By contrast, there were no differences on thought content 0.43 and thought processes 0.00. We are indebted to Dr. Dean Clyde, Psychopharmacology Service Center, for this analysis.

One patient, as noted, had to be excluded from the statistical analysis because she developed paranoid ideas about the procedure, refused to take oral medication and thus did not complete the experiment. The Sands-Malamud Scale continued to be used, however, and the total pathology scores are included in Table III. In the sixth week, when her clinical state was at its worst, she was given intramuscular triflupromazine (Trilafon). Sufficient improvement ensued for her to be returned to project medication. This happened to be placebo, and there is some indication that her pathology score was rising again as the experiment ended.

DISCUSSION

The omission of the results of the Clyde Mood Scale is to be noted. The test was successfully performed by these chronic schizophrenic patients (a finding of some interest that they sorted the cards at all), but the results showed overall improvement with time, not differentiating one treatment from another. It might be argued, of course, that these results mean that none of the medications were of any different effectiveness. But we believe that this is merely a good example of the degree to which results depend on the measuring instruments. As this investigation proceeded, it became apparent that these patients highly correlated their giving a favourable picture of themselves with their hoped-for early release from the hospital. Thus, though "blind", the patients were not unbiased observers.* We believe, as stated, that this was due to the patients' assumption that a bland score meant early discharge. We conclude, therefore, that the Sands-Malamud Scores are more accurate. This criticism would not apply to the use of the Clyde Mood Scale in situations where secondary gain (or similar bias) was not in operation.

In calling attention to our favourable results with Compazine and Stelazine we would merely want to point out the obvious, namely that these results are highly pertinent for these conditions (diagnosis, type of patient, rating scale, etc.) and that generalizations must be made with caution.

On the other hand, probably the greatest significance of this particular undertaking is the demonstration that it is possible to draw specific conclusions from a small sample. This suggests an alternative method to large samples in drug studies. Even when one stacks the statistical cards against oneself by choosing a small sample, it is possible to draw conclusions of high statistical confidence with a combination of careful selection of a homogeneous group of patients, careful experimental design, potent medications and observations by an experienced observer on a scale with which he is familiar.

SUMMARY AND CONCLUSIONS

A double-blind drug study was conducted with eight female schizophrenics of intermediate length hospitalization. Thorazine (Largactil), Compazine (Stemetil), Stelazine and an inert placebo were used in a latin square design. None of the drugs had an appreciably different effect on psychotic ideation, but Compazine and Stelazine were definitely superior in the management of overall psychopathology as measured by the Sands-Malamud Scale.

* We are not sure that it has been sufficiently pointed out that even a "blind" rater can be influenced by bias. An investigator, for example, who has a bias, recognized or unrecognized, against all drugs can verify this bias even in a double-blind study by unwittingly scoring results so that everybody or nobody improves. The presence of variations in results is some indication that this particular bias is not operating. Our Sands-Malamud Scores fulfil this criterion, whereas the Clyde Mood Scale Scores do not.

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BIBLIOGRAPHY

1. BARSA, J. A., SAUNDERS, J. C., and KLINE, N. S., *Am. J. Psychiat.*, 1959, **115**, 812.
2. CLYDE, D. J., Psychopharmacology Service Center, N.I.M.H., Bethesda, Maryland.
3. DENBER, H. C. B., *Psychiat. Res. Rep.*, 1958, **9**, 16-22.
4. DENHAM, J., *J. Ment. Sci.*, 1958, **104**, 1190-1194.
5. DRANSFIELD, G. A., *J. Ment. Sci.*, 1958, **104**, 1183-1189.
6. FELDMAN, P. E., *Trifluoperazine*, 1958. Philadelphia: Lea and Febiger.
7. FORRESTER, M. E., *Brit. Med. J.*, 1958, *ii*, 90.
8. FREYHAN, F. A., *Psychiat. Res. Rep.*, 1958, **9**, 23-31.
9. FRIERSON, B. D., *J. Nerv. Ment. Dis.*, 1958, **126**, 585-586.
10. GOLDMAN, D., *Psychiat. Res. Rep.*, 1958, **9**, 23-31.
11. HALL, R., and DUNLAP, D., *J. Nerv. Ment. Dis.*, 1955, **122**, 301-314.
12. HANLON, T. E., KURLAND, A., ESQUIBEL, A. J., and OTA, K. Y., *J. Nerv. Ment. Dis.*, 1958, **127**, 17-20.
13. KURLAND, A., *J. Nerv. Ment. Dis.*, 1955, **121**, 321-329.
14. LEHMANN, H., *Canad. Med. ass. J.*, 1955, **72**, 91-99.
15. MACDONALD, R., and SHIELDS WATTS, T. P., *Brit. Med. J.*, 1959, *i*, 549.
16. MADGWICK, J. R. A., MCNEILL, D. L. M., DRIVER, M., and PRESTON, G. C., *J. Ment. Sci.*, 1958, **104**, 1195-1197.
17. MALAMUD, W., and SANDS, S. L., *Am. J. Psychiat.*, 1947, **104**, 231-237.
18. MILNE, H. R., and BERLINER, F., *J. Ment. Sci.*, 1958, **104**, 873-879.
19. PENNINGTON, V., *Med. Times*, 1959, **87**(11), 1432-37.
20. PERLIN, S., and RUSSELL LEE, A., *Am. J. Psychiat.*, 1959, **116**, 231-243.
21. RUDY, L. H., RINALDI, F., COSTI, E., HIMWICH, H. E., TUTEUR, W., and GLATZER, J., *Am. J. Psychiat.*, 1958, **115**, 364.
22. SHERMAN, L. J., *Am. J. Psychiat.*, 1959, **116**, 208-214.
23. TOLAN, E. J., PEPPEL, H. H., *Am. J. Psychiat.*, 1959, **115**, 935.
24. WILCOX, F., *Dis. Nerv. Syst.*, 1955, **19**(3).
25. WINKELMAN, N. W., *Dis. Nerv. Syst.*, 1959, **20**(1), 27-30.
26. *U.S. Public Health Reports*, 1957, **72**, 7.

POSSIBLE SYNERGISTIC EFFECTS OF THE NEW THYMOLEPTICS IN CONNECTION WITH POISONING

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DURING recent years, a good deal of attention has been drawn to the therapeutic and toxic effects of the new thymoleptics. Although most of these preparations have had a reasonable clinical trial before being released for general use, it is a fact that hitherto unsuspected toxic effects continue to come to light. Among the more recently discovered side-effects of Tofranil (imipramine) are the occurrence of jaundice and a tendency in certain patients to epileptic fits. Experimentally it has been shown that Tofranil increases the excitability of the brain of rabbits and may evoke convulsant spikes (1), and in a recent article by Leyberg and Denmark (2) it is recorded that in four cases of a relatively small series the dose of the drug had to be reduced on account of epileptic fits.

Fine tremor and restlessness are now well recognized side-effects of Tofranil. Lancaster and Foster reported the case of a suicide attempt with Tofranil (3). They described as the most prominent feature of the case gross involuntary movements and dysarthria occurring in a setting of relatively clear consciousness and developing a few hours after ingestion of the drug. On examination there was restlessness and increased muscular tone of a cogwheel variety.

Nardil (phenelzine) is known to cause ataxia in susceptible patients, and recently three cases have been described in which the ataxia was associated with clonus, spasticity and up-going toes and also two cases in which delirium occurred (4). The drug has also been held responsible for choreiform movements (5).

The object of this short paper is to draw attention to three cases, including two fatalities, in which severe disturbances in the central nervous system appeared to be associated with the administration of Tofranil and Nardil in normal doses.

CASE REPORTS

Case I

A married woman of 33 who had before her death spent a considerable time in mental hospitals undergoing treatment for alcoholism and recurrent episodes of depression. She was discharged from hospital in order to undergo an abdominal operation for adhesions, on the understanding that she would be returning for out-patient care as soon as she had recovered sufficiently. At the time of discharge she was receiving tabs. Nardil 15 mg. t.d.s. without untoward effect, and this drug was continued up to the time of her death. She underwent the operation on 8 September and was making satisfactory post-operative progress, when on 18 October her general practitioner was called to see her at home because the family were unable to rouse her in the morning.

He found her deeply comatose, with marked muscular rigidity and exhibiting muscular twitching down the right side. She had a temperature of 106° . She was admitted to hospital where she died without regaining consciousness and before any investigations could be carried out. At post-mortem the brain was rather oedematous, and the meningeal vessels slightly hyperaemic, but no pathology sufficient to cause death could be found. Extensive enquiries were carried out to ascertain what drugs might have been taken by the patient prior to her death. It came to light that she had started drinking whisky once again and there was also substantial evidence to indicate that she had access to a large amount of chloral hydrate which had been prescribed for another member of the family, and may have taken a fatal dose. There was, however, nothing to indicate suicidal intent. There was no evidence that she had taken an excessive dose of Nardil, and such tablets as had been prescribed for her could be accounted for. An open verdict was recorded at the inquest, with probability of accident suggested.

Case II

A married woman of 38 who was admitted to hospital on 10 November complaining of depression, difficulty in sleeping and anxiety about her baby, who was then fourteen months old. She had shown signs of depression for some two or three months before coming into hospital but her symptoms had become more severe in the preceding two weeks. At the time of admission her physical condition was satisfactory. Blood pressure was 135/90. There were no abnormal signs in the central nervous system. It was felt that she was suffering essentially from an endogenous depression, with tension and early waking. Some days before admission her general practitioner had commenced treatment with Tofranil and this was continued in hospital, increasing the dose to 250 mg. daily. She was also given Largactil in doses increasing to 75 mg. t.d.s. on account of associated tension. After five days in hospital it was clear that the depression was deepening, and a course of E.C.T. was commenced. After eight treatments she had shown considerable improvement, though she continued to have transient periods of depression in which she became anxious and required a good deal of reassurance. She reached the stage of going out with some regularity and visiting her home, which was near to the hospital.

Whilst on a visit home on 3 January the patient took not more than 175 gr. of aspirin. Her husband immediately returned her to the hospital, and within the hour she was given an emetic, and a small amount of aspirin was recovered. She was put to bed, and an hour or two later it was noted that there was a certain amount of facial twitching and some mild jerky movements of the limbs. She did not answer questions satisfactorily and resisted attempts to examine her. It was not possible to demonstrate any clear abnormality in the central nervous system, though there was some increase in muscle tone and clonus could be demonstrated in both lower limbs. Tendon reflexes were equal and both plantar responses clearly flexor. There were no signs of aspirin intoxication at this stage. Some six hours after ingestion of the aspirin she had a major epileptic fit followed by a rise of temperature to 100° . She was then found to have divergent strabismus, and arrangements were made to transfer her to a nearby general hospital. She later had two further major fits, and the temperature rose after these to between 106° to 107° . Pulse rate had then increased to 160 and respiration to 50. The blood pressure was

110/80. Examination of the central nervous system showed deviation of the eyes to the right and rapid nystagmus. Respiration ceased, and she was supported for a time by a respirator, blood pressure being maintained by a drip of noradrenalin in normal saline. Despite these measures, she died little more than twenty-fours after taking the aspirin.

Investigations:

C.S.F. examination revealed	370 r.b.cs./c.mm.
	1 leucocyte /c.mm.
	190 mg./100ml. protein.
Serum electrolytes.	
Serum sodium	185 mEq/litre
Serum potassium	3.0 mEq/litre
Serum chloride	140 mEq/litre
Serum bicarbonate	21 mEq/litre

Plasma salicylates were 10 mg./100ml. (i.e., less than the level recommended for the treatment of rheumatic fever).

In view of the unusual course of the illness, every effort was made to determine whether she might have taken other drugs besides aspirin. Whilst conscious the patient herself denied this and no evidence was found. There was no question of her obtaining Tofranil within the hospital, and the tablets supplied by the general practitioner before admission were accounted for. It is reasonably certain, therefore, that she had no more than 175 gr. of aspirin. Post-mortem showed a small subdural haematoma over the left parietal lobe, a certain amount of cerebral oedema and minimal coning into the foramen magnum, abnormalities which in the opinion of the pathologist were probably insufficient to cause death by themselves. There was no question of head injury.

Case III

A single woman of 76 who had for some thirty years suffered from recurrent episodes of endogenous depression. Some of the earlier illnesses had been cut short by E.C.T., but on the occasion of the recent breakdown it was found that there was evidence of early dementia and thymoleptics seemed a more satisfactory method of treatment. She was first given Tofranil with improvement in her depressive symptoms, but she complained of giddiness, and suffered two or three falls. It was felt that Tofranil was probably responsible, and the drug was discontinued. The depression recurred and later Nardil was tried in doses of 15 mg. t.d.s. This had little or no effect on her symptoms; the depression deepened, and she began to express suicidal ideas. An attempt was then made to resume treatment with Tofranil, and in the course of the changeover on 30 January she received 15 mg. of Nardil and 50 mg. of Tofranil simultaneously. Exactly an hour after the ingestion of these drugs she began to exhibit muscular rigidity and irregular movements of the limbs. She was grimacing but quite unable to speak. When she was put to bed, there were seen, in addition, to be some semi-purposeful movements, in so far as she would continue to clutch for the bedclothes, even if they were taken from her hands. On examination, temperature was 97.6°, pulse rate was normal, there was no change in her blood pressure which was 160/80. Muscular tone was markedly increased in all four limbs, and ankle clonus could be demonstrated on both sides. In addition to the gross twitching of the limbs, fine twitching could be seen in the muscles themselves, particularly over the thighs.

These symptoms persisted for about an hour and then gradually passed off. There was no hyperpyrexia associated with this case. After one hour of muscular twitching the temperature had risen to no more than 98.7° . After recovery the patient had little or no recollection of the episode.

COMMENT

In the first two cases described the symptoms exhibited after the ingestion of chloral and aspirin respectively were out of keeping with what normally might have been expected. In the second case there was initially no reason to anticipate a fatal outcome. In both these cases the patients were at the time of taking the overdose receiving thymoleptics, and although Tofranil and Nardil are chemically dissimilar, their therapeutic effect when seen is comparable, and so also are some of the side-effects.

One cannot help, therefore, asking the question as to whether the unusual symptoms in these first two cases might be attributed to the fact that they were receiving normal doses of thymoleptics at the time they took the overdose of the other drugs, and whether indeed this may have contributed to the fatal outcome.

In the third case similar symptoms were again seen, this time as the result of the administration of Tofranil and Nardil together in a patient who was apparently abnormally sensitive to these drugs.

Whilst it is well recognized that there may be synergistic effects between these thymoleptics and other preparations, the developments in these cases may point to a more serious synergism with effects upon the central nervous system capable of proving fatal. It is impossible on the strength of three cases with some dissimilar features to draw any firm conclusions, but the suspicion aroused can only serve as a pointer to further caution in the use of drugs about which we still have a great deal to learn.

REFERENCES

1. METER, OWENS and HIMWICH, *Canad. Psychiat. Ass. J.*, 1959, **4**, s. 113.
2. LEYBERG and DENMARK, *J. Ment. Sci.*, 1959, **105**, 1123.
3. LANCASTER and FOSTER, *B.M.J.*, 1959, *ii*, 1458.
4. CLARK, J., *B.M.J.*, 1960, *i*, 1204.
5. CRAIG, D. D. H., Warner and Co., 1960. Personal Communication.

SINGLE DAILY DOSE TREATMENT OF PSYCHIATRIC PATIENTS WITH PHENOTHIAZINE DERIVATIVES

By

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INTRODUCTION

WHEN discussing some of the problems associated with chlorpromazine (Largactil) therapy, Denber and Travis (2) point out that it is desirable that the drug be given as infrequently as is compatible with therapeutic efficacy. They found this to be twice a day. Haden (5) and Tibbits (10) report that satisfactory results can be obtained with single daily doses. While studying the single daily dose administration of drugs in a psychiatric hospital, Lara and Wells (7) found that phenothiazine compounds could reasonably be given in this way. In order to explore these reports the medication of 17 chronic, well stabilized, male schizophrenic patients was changed by giving their chlorpromazine once instead of three times a day. These patients had been on an average dosage of 200 mg. of chlorpromazine t.d.s. The dosage was altered by giving the total daily dose at one time, limiting the maximum dose to 600 mg. In some cases this resulted in a small reduction in the total dosage. The main side-effects complained of before the change were photo-sensitivity from 8 patients and drowsiness during the day from 9 patients. Because of this latter complaint the single dose was given at 9 p.m. Three weeks after the change to the single dose no alteration in symptoms or behaviour had been noted except that there were now no complaints of drowsiness during the day. Two patients complained that they disliked taking 6 large tablets at one time.

Because of this complaint and the continued photo-sensitivity it was decided further to study the single dose method by using trifluoperazine (Stelazine) instead of chlorpromazine.

MATERIAL AND METHOD

Over a period of nine months 86 patients (82 males and 4 females) were treated by the single daily dose method with trifluoperazine. The group consisted of 5 acute and 56 chronic schizophrenic patients (acute being reserved for those who showed their schizophrenia for the first time), 3 epileptics, 5 with endogenous depression, 5 showing the withdrawal symptoms of addiction, 2 in mania, 3 with toxic psychoses, 5 with senile states, 1 with an obsessional neurosis and 1 patient with a traumatic dementia. The patient's ages ranged from 18 to 80 years with an average age of 38. The time spent in hospital varied from 2 weeks to 19 years, the average stay being 7 years. The duration of symptoms until the commencement of therapy with trifluoperazine extended from 1 week to 20 years, the average being $2\frac{1}{2}$ years.

Those patients who are described above who had developed photosensitivity while receiving chlorpromazine were changed to trifluoperazine by regarding 5 mg. of trifluoperazine as being equivalent to 100 mg. of chlorpromazine. With the other patients the treatment was started with a 10 mg. oral dose, except in those instances where the patients were too disturbed to accept the drug by this route. These patients commenced treatment with a 2 mg. parenteral dose. The parenteral route was only used until the patients would co-operate; this had always occurred by the third day of treatment. On the second day of treatment the starting dose was repeated; on the third day the dose was increased by 5 mg. and the dose would be further increased by 5 mg. on alternate days until a response, or troublesome side-effects had occurred. The first dose was given immediately after the decision to commence treatment had been made, all subsequent doses were given in the evening. The effective dosages ranged from 10 to 45 mg. the average effective dose being 25 mg. It was often found possible to reduce the initial maximum dosage to a maintenance level which was found to be between $\frac{1}{2}$ to $\frac{2}{3}$ of the maximum dosage.

Twenty-seven patients received other forms of treatment in addition to trifluoperazine. The 3 epileptics and 4 leucotomized chronic schizophrenics received anti-convulsant drugs. Two patients who developed chest infections received tetracycline. The side-effects of trifluoperazine in 2 patients required treatment with benzhexol (Artane). Four of the 5 patients with endogenous depression were treated primarily with imipramine and E.C.T. and were only given trifluoperazine to help to control either the agitation associated with the imipramine treatment or the depression. The fifth case of endogenous depression was treated only with trifluoperazine because of the marked paranoid character of his symptoms and the troublesomeness of his hallucinations. He was unfit for E.C.T. Schizophrenics received E.C.T. when there was a behaviour disorder present; this occurred in 3 of the 5 acute schizophrenics and 8 of the 56 chronic schizophrenics. Those schizophrenic patients receiving E.C.T. were not found in any particular response group.

The assessment of patients was made at clinical interview, the diagnosis being made before treatment was commenced. One-third of the group under discussion were admitted to this hospital under some form of legal order. These patients were reviewed within three days of admission by the Physician Superintendent.

Improvement was assessed by noting the changes in the patient's signs and symptoms. Marked improvement often resulted in a change in the patient's situation either within the hospital, or from the hospital to home. Improvement in the patient's condition was classified as follows: Very Good; when the patient returned to home and work from the hospital symptom free, or with a great reduction in symptoms, or, while at home obtained complete relief from symptoms. Good; when the patient returned to home symptom free or with a marked improvement in symptoms and then attended the Day Hospital, or, a great improvement in symptoms allowing the patient to work from the hospital. Fair; when there was an improvement in symptoms so that the patient could work in the hospital. No change. Worse; when there was an intensification of symptoms.

RESULTS

The therapeutic results are indicated in Table I.

TABLE I

				Results					
				No. of	Very		No		
				Cases	Good	Good	Fair	Change	Worse
Acute Schizophrenia	..	..	5	2	1	1	1	—	—
Chronic Schizophrenia	..	..	56	12	20	22	2	—	—
Endogenous Depression	..	..	5	1	1	2	1	—	—
Mania	..	..	2	1	—	1	—	—	—
Withdrawal symptoms in									
addiction	..	..	5	2	2	—	1	—	—
Toxic Psychosis	..	..	3	2	1	—	—	—	—
Epileptic Psychosis	..	..	3	—	2	1	—	—	—
Senile State	..	..	5	3	1	1	—	—	—
Obsessional Neurosis	..	..	1	—	—	1	—	—	—
Traumatic Dementia	..	..	1	—	—	—	—	—	1
Totals	..	..	86	23	28	29	5	—	1

SIDE-EFFECTS

The side-effects encountered during this study were usually noted before they became troublesome to the patient, except with 3 patients who developed dystonic reactions in the neck and throat muscles, and 3 patients who had oculogyric crises. In all, 12 patients developed troublesome side-effects; these are summarized in Table II.

TABLE II

Side-Effect	No. of Patients
Drowsiness ..	1
Oculogyric crises ..	3
Dystonic reactions ..	3
Akathisia ..	8
Parkinsonism ..	7

The patients who developed oculogyric crises had all previously reacted to the drug with Parkinsonism. Two patients with dystonic reactions and one patient who had an oculogyric crisis did so during sleep and in each case the patient reported that these reactions were accompanied by terrifying nightmares. Seven patients developed a Parkinsonian reaction. One schizophrenic female patient who had been well controlled on a daily dose of 15 mg. of trifluoperazine for three months, developed a severe Parkinsonian reaction when the sedative thalidomine (Distaval) was added to her medication. This reaction settled within three days of the thalidomine being withdrawn.

Most side-effects were promptly controlled by reducing the dosage in the majority of instances by 5 mg. per day. In one case 10 mg. had to be withdrawn before the side-effects were controlled. It was found that this reduction in dosage was only a temporary measure as after seven days the previous dosage could be resumed without a recurrence of side-effects. In 2 cases benzhexol was added to the medication to control the side-effects because it was found that only by this method could a therapeutic dose be maintained.

DISCUSSION

The purpose of this paper is to report the way in which a single dose technique for administering phenothiazine derivatives was developed and used in the routine treatment of some patients in this hospital. No attempt was made to apply any statistical control during this study.

While this study was being undertaken there were a number of objections raised against the use of the single dose technique. These were:

1. That the single dose was less efficient than the multiple dose technique.
2. That a marked peak effect would occur soon after administration.
3. That there would be an increase in side-effects.
4. That patients would object because of the difficulty in taking a large number of tablets at one time.

The results described above, although not controlled, showed the same order of therapeutic response as has been found by other authors, e.g., Milligan *et al.* (9), Batt (1), Kruse (6). No peak effects were observed and the incidence of side-effects was lower than reported by others who used about the same dosage levels; an incidence of 14 per cent. as compared with 45 per cent. Milligan *et al.* (9) and 66 per cent. Madgwick *et al.* (8). The low incidence of side-effects reported in this study may be ascribed to the possibility of some minor side-effects occurring during the hours of sleep. When using phenothiazines which tend to produce drowsiness this side-effect can be turned to positive advantage when used by this method, as is reported at the beginning of the paper. There were no complaints from the patients receiving trifluoperazine regarding the number of tablets (up to 9) to be taken at one time. It seems, therefore, that there is at present no real objection to the method described above.

Theoretically this is a logical method of administering phenothiazine derivatives, as Forrest *et al.* (3) have shown that following the ingestion of chlorpromazine it is excreted over a period of up to one week. It has been shown, using Forrest's reagent (4) that the same holds true for the more potent phenothiazines including trifluoperazine.

In this hospital of 560 beds where just under 50 per cent. of the patients are receiving tranquillizer therapy the adoption of this method of administering the medication would save at least 82 nursing hours per week. On the wards where this method has been adopted there has been a saving which varies from $\frac{3}{4}$ to 2 hours per day of nursing time. We further find that the nursing staff welcome this saving and are willing to devote this time to other forms of treatment. One feature of this method which the nursing staff have reported is that they now have ample time to spend with each patient and ensure that the medication has in fact been ingested.

Some patients in hospital have expressed the feeling that because they receive their medication in a single daily dose they feel less dependent on "tablets" than when they had received medication three or four times a day. Those patients who are out in the community seem quite willing to accept their medication in this form for a number of reasons. Firstly they often fear the ridicule of their workmates and others when they have to take their tablets in public. Secondly many have said that as they depend on their relatives or a district nurse to give them their medication they are glad that it need only be given once a day. With the present tendency towards early discharge from hospital to community care the change in attitude of the patients and their relatives to treatment could be a factor in facilitating the maintenance of patients in the community on medication.

SUMMARY

The development and technique, in this hospital, of administering phenothiazine derivatives to psychiatric patients in single daily doses is

described. The types of patient treated by this method are reported together with the criteria used in assessing the results of the treatment. The overall results were 23 very good, 28 good, 29 fair, 5 no change and 1 worse. The incidence of side-effects was found to be low, occurring in 14 per cent. of the patients. These results are discussed together with the possible disadvantages of the methods and the advantages which were found to accrue during the nine months over which the study was conducted.

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REFERENCES

1. BATT, J. C., *Postgrad. Med. J.*, 1959, 572.
2. DENBER, H. C. H., and TRAVIS, D. H., *Psychiat. Quarterly*, 1958, 32, 538.
3. FORREST, *et al.*, *Am. J. Psych.*, 1957, 113, 931.
4. FORREST, *et al.*, *Am. J. Psych.*, 116, 549.
5. HADEN, P., *Am. J. Psych.*, 1959, 115, 932.
6. KRUSE, W., *Am. J. Psych.*, 1959, 115, 1031.
7. LARA, J. Y., and WELLS, D. T., *Mental Hospitals*, 1960, 11, No. 4.28.
8. MADGWICK, J. R. A., *et al.*, *J. Ment Sci.*, 1958, 104, 1195.
9. MILLIGAN, W. LIDDELL, *et al.*, *Met. Proc.*, 1960, 6, 109.
10. TIBBITS, J. C. N., *Lancet*, 1958, i, 689.

ORAL SERNYL IN OBSESSIVE STATES

By

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SERNYL, 1 aryl-cyclo-hexylamine, is a synthetic drug first used by the anaesthetists because, when given intravenously, it produces analgesia. However, the occurrence of psychological disturbances post-operatively led to the investigation of this drug by psychiatrists. It was found that Sernyl produces many interesting psychological disturbances, some of which resemble the primary symptoms of schizophrenia (Davies and Beech, 1960). In a previous paper (Davies, 1960) Sernyl was given intravenously to five patients with long-standing psychoneurotic illnesses. It proved to be an effective abreactive agent and produced some interesting results in three of the patients who had obsessional symptoms. Sernyl, in the doses used, is not an hallucinogen, though it produces other effects similar to lysergic acid diethylamide, which has been used extensively as a therapeutic agent, particularly in obsessional states (Sandison *et al.*, 1954). The preliminary report suggested that Sernyl might have some practical advantages over LSD—in particular, it produced a less severe disturbance and its effects were over more quickly. Further investigations were clearly indicated and this present paper reports on the use of oral Sernyl in five patients with obsessional illnesses.

MATERIAL

The five patients were in-patients at Bethlem Royal Hospital and some clinical details are given in Table I. Case reports are also given below.

TABLE I

Patient	Sex	Age	Length of Illness	Number of Interviews with Oral Sernyl
1	M	30	7 years	20
2	F	21	4 years	20
3	F	24	2 years	10
4	M	36	2 years	13
5	M	28	4 years	10

CASE REPORTS

(1) A thirty-year-old man was admitted for the treatment of an obsessional state of some seven years' standing. Hand-washing was a prominent feature of his illness.

His father died at the age of sixty-five, when the patient was twenty-seven. He was said to have been a moody man, prone to anger, and the patient always felt uneasy in his presence. His mother is alive and well, but has received treatment on two occasions for depression. She left her husband when the patient was fifteen. The marriage had not been an harmonious one and there had been many quarrels before they finally separated. There was one brother, five years the patient's junior.

The birth was normal and development was uneventful until his fourth year, when he began to bite his nails and wet his bed. At this time he received treatment at a child guidance clinic. At school he was an average scholar, and when he left he became a radio technician. He later served in the R.A.F. and then became a sales correspondent concerned with various electrical appliances.

He began to masturbate in his teens, but there were severe guilt feelings and he was convinced that the habit would cause him some physical harm. Associated sexual phantasies were exclusively heterosexual. When he was twenty-four, he married, but it was never a success, mainly because of his obsessive symptoms. He was divorced four years later.

Obsessional symptoms began in his teens when, for some months, he was troubled by the idea that a bottle of milk might contain a piece of glass. However, this idea subsided over the course of several months and there was no recurrence of obsessional symptoms until he began to work for a firm making electronic equipment. He was aware that plating processes involved the use of potassium cyanide, and he became afraid that if he touched anything at work, he might be contaminated with cyanide. This obsessive idea became more troublesome, and he developed hand-washing rituals. For the seven years prior to admission, these symptoms had varied in severity and had been particularly severe when his marriage was breaking down.

On three separate occasions he received in-patient hospital treatment, during which time there was some improvement, though his symptoms returned soon after discharge. Immediately prior to the present admission, the fear of cyanide had become more severe and the hand-washing rituals occupied about two hours of each day, making him late for work on most days.

On admission, he was pleasant and co-operative. The main feature of the mental state was the obsessional thoughts concerning cyanide, which he felt was in some way related to his previous problems with masturbation.

Treatment and Progress

He received twenty treatments with oral Sernyl (5-10 mg.) and our impression was that this did facilitate the production of emotionally-charged material. At the first session he said, "I feel I am floating about; it's fascinating. I feel as if I am talking from a different part of my mind, and the troubles have been wiped clean—like a slate." At the second session, he talked about his fear of his father, after which, his hand-washing became more severe. At the third session, homosexual experiences were related with a good deal of relief. "It is like bringing the childhood memories back—I remember the local park, where there was a small forest—where people used to talk of mysterious things—witches, ghosts, dead people. I was always afraid somebody would get me if I was not good." After recounting his homosexual experience, he said, "Next time I met the man I was afraid he might put poison on to me. The fear of cyanide became intense and I did not want to meet him again."

At one time, he said, "My mind is scrambled up—I can remember, but I don't want to remember." At another, "Good Lord, it's fantastic the way it has brought back the memories; good Lord, yes—until the time my brother was born, I used to sleep with my parents—then they put me to live in a little room—good Lord—I'm re-living all these things. I woke one night, frightened that I would be put away because I was naughty. Fear, fear, fear, I am full of fear, all the time, even now. If I could know what I am afraid of, I could do something about it."

After thirteen treatments, he said, "I think that some of the force has been taken out of my compulsions, the strength of the habit has been slackened to some extent—my washing seemed to be like giving a sacrifice."

Twenty treatments were given in all with some general improvement in his condition. The drug seemed to facilitate his talking about emotionally-charged subjects and it seemed to provoke "memories"—"I have just remembered and seen things which happened when I was two or three—those distant memories come back to me in vivid detail."

There were no hallucinations, though he said on one occasion, "In my mind there are some furry creatures or some things with long beaks—I am not sure if I imagine them or can see them."

He was discharged from hospital after a four months' stay and resumed work. Three months later he was still at work, hand-washing was not a problem and he was not troubled with obsessions about cyanide.

(2) A twenty-one-year-old spinster was admitted to hospital for the treatment of hand-washing rituals that occurred 50-100 times each day and had been present for four years.

Her father, a farmer, was alive and well, aged 57. Her mother, aged 60, was described as "nervous and secretive", but she died of heart disease while the patient was in hospital. She had one brother, aged twenty-three. There was no family history of psychiatric illness.

Her birth was normal and her childhood development appeared normal, there being no neurotic traits. She did well at school and remained at a grammar school until the age of eighteen. Her periods began at the age of fourteen and were regular. When she was seven, she was attacked sexually by a mentally defective farm labourer. Between the ages of twelve and fourteen, she and her brother indulged in sexual play, which stopped when her menses began. She had a boy-friend when she was seventeen, but had never had sexual intercourse. She was described as a shy girl, very attached to her family, not prone to mood changes.

Four years before admission, after a farmer friend had stayed at the house, she began to wash her hands frequently. This became slowly more severe and was noticeably more so when she saw or touched one of the many dogs on the farm. In the year previous to admission, she had received psychotherapy and electro-convulsive therapy.

On admission, the hand-washing was the main feature; if she resisted the compulsion, she became hot, tense and irritable. She was of average intelligence and was mildly depressed.

She received twenty treatments with oral Sernyl (5-10 mg.) and this seemed to help her to produce emotionally-charged material. There were no unpleasant side-effects and the effect of the drug was always over within three hours of its administration.

After the first capsule she said, "I feel giddy, my head feels funny; I am detached, as if I am going to sleep. I feel vague and frightened. I feel dirty, contaminated, somehow; I am dirty inside. I want to get it out, to scream I am bad. When I wash my hands, I think it is going to cleanse me. But it doesn't. I feel so bad, as if there is a devil inside me—as if something evil was eating me. This boy at the farm, now, I am afraid of him. I have to wash after anything he touches; I don't know why. Dogs. What have dogs to do with it? I try to connect them, but I don't understand. I don't understand. I wash my hands, then I look for a reason, but there is none."

On the second occasion, her body felt "different". "My head feels different, bigger, my hands are big. I feel puffed out."

On the third occasion, she said, "I feel as if I am away from the obsessions. Oh! I wish this feeling would last for ever. I wish I could forget everything. I feel I want to tell you everything." She then related her sexual experiences with her brother. "Now you can see my past is terrible—I have not told anyone before, I could not, it's very bad."

On the fourth occasion she commented, "I feel so devoid of emotions, so empty. So absolutely separate from myself." She went on to describe her feelings of aggression towards her parents.

At the eighth session, she said, "I saw a dog yesterday. When I saw it, I was paralysed; I could not move. I thought I was cured from that obsession with dogs. There must be something bad in me, my disease is evil. I feel dirty and in washing my hands I feel I will be clean."

At the fifteenth session, she said, "When I was small, four or five, I remember once I undressed to have a bath in the kitchen—there were a lot of dogs at the farm then, six or seven in all. One of them came in and started to lick my private organs. I was so fascinated that I tried to persuade the dog to do it again."

After twenty treatments, psychotherapy was continued without the drug, as it was felt that a good deal of material had been produced and that it needed to be used constructively in a non-drugged state.

Our clinical impression was that, while the abreactive treatment did little to change this girl's symptoms, the Sernyl was of practical value in facilitating psychotherapy.

(3) A twenty-four-year-old married woman was admitted to hospital for the treatment of an obsessive illness of two years' duration. Her father died at the age of thirty-two when the patient was nine months old. Her mother, aged fifty-two, is alive and well. She re-married when the patient was four, and is described as a "nagging, dominant person." There were no siblings and no family history of mental illness.

Her childhood development was normal, though she was a nail-biter and had recurring night terrors. She did well at school and was popular with both staff and pupils. While at school she developed a habit of checking her lessons with those of her colleagues before submitting the lessons to the teacher. When she left school, she became a secretary and worked well until she married at the age of twenty-two. The marriage was a happy one and sexual adjustment appeared to be normal. Both she and her husband wanted a child, and she became pregnant soon after the marriage. When she was six months pregnant, she developed obsessive doubts about her husband's love and fidelity. When the baby was born after a normal labour, she developed doubts that the baby was hers, thinking (though she realized it could not be so) that she might have taken the wrong baby from the hospital. In addition, she developed obsessional doubts about the reality of solid objects. She was treated with electro-convulsive therapy and psychotherapy at another hospital, but with little improvement in her condition.

On admission, there were no obsessive rituals, ruminations—*folie de doute* being the key feature of the mental state in an intelligent, attractive woman, who was mildly depressed.

At the first interview, she said, "I feel dizzy—my mind has gone dead—only casual thoughts are in my mind—I don't know if it's important. Oh! it's the same thought, really—about my husband and my child—my doubts—I just seem to remember a seaside holiday with my mother—rather unhappy—I was not getting on well with my mother. It's funny, I don't feel upset by my doubts now."

Treatment was continued and she talked freely about her mother, father, her schooldays. However, as the emotional element was not too prominent, 15 mg. of Sernyl was given on one occasion. This produced a severe disturbance, the patient screaming, shouting and reacting in an aggressive way when comforted. Later she described this experience and wrote, "Quite suddenly the giddy feeling became more acute and I had to lie down on the bed. But I felt steadily worse. I began to cry and panic and started to scream for John and Stephen. I felt completely drunk and had no control over the nonsense I was saying. I experienced a strange, weak and tingling sensation in the feet and legs. I started to sing in a cockney accent and then burst into laughter. I was given an injection. I was aware of everything and I fully realized that I was behaving abnormally, but could not prevent myself. Then everything in my body began to react and I felt weak and giddy; I began to panic and started to scream. I could not explain

my feelings because my head was too full of thoughts. I then rested and got up later feeling weak, but somehow better."

Next time she was given 10 mg. of Sernyl, but again there was a severe disturbance and so the treatment was discontinued.

She was, at this time, much improved to her state on admission, though this was not necessarily due to the ten treatments with Sernyl.

She was later discharged from hospital and has remained well since, being little troubled by her ruminations.

(4) A thirty-six-year-old married man was admitted to hospital because of frequent hand-washing rituals associated with obsessional ruminations about venereal disease.

His father died in 1953 and is described as a drunkard. His mother and seven siblings are alive and well. Except for the father, there was no family history of mental disorder.

His early childhood seemed unremarkable; there were no neurotic traits. Later, he was an average scholar, but was particularly good at all sports. He joined the army in 1942, but was discharged within a year because of "nervous disability". Symptoms at this time could not be classified as obsessional.

He married at the age of seventeen and, until a year or so before admission, his relationship with his wife was good, though marred by the fact that they had to live with her parents.

In January, 1958, he had sexual intercourse with a casual acquaintance he met at a café, and immediately developed guilt feelings and a fear of venereal disease. He went to nearly all the teaching hospitals in London, having repeated serological tests for syphilis, all of which were negative. Six months before admission, he found that when he passed a woman in the street, he would wonder if he had ever had intercourse with her and whether he could have venereal disease. These thoughts were typically obsessional in character. He asked his wife and children not to touch his things at home and he developed hand-washing rituals. His work began to be affected and he was admitted for treatment.

On admission, he was a man of low average intelligence, who was not a good talker. The obsessional features mentioned above were the main features of the mental state.

Treatment was begun with oral Sernyl and it was found that he was able to talk more freely about his obsessions and about this one sexual misdemeanour. Dosage given was 5-10 mg. and there was, on no occasion, any complaint beyond "dizziness" and there was no abreaction. In later interviews he talked about homosexual encounters. After eight treatments, he seemed better, hand-washing was less frequent and he seemed less troubled by his obsessions. However, at the eleventh session he said, "I am better, but suspicious. I don't like to eat from the table because everybody picks up bread from a common dish. I am suspicious of every new patient—all because of my fear of syphilis; I am afraid I shall catch it if I stay here."

He received thirteen treatments in all, then took his discharge, against advice, because of his fears of catching syphilis from the patients.

When last seen this patient was working and his obsessions had less force than on admission, but no fundamental change was apparent.

(5) A twenty-eight-year-old batchelor, a mathematics teacher, was admitted for the treatment of an obsessional illness of four years' duration.

Both parents were alive and well; the father, a retired civil servant, still treats the patient as a small child. There is one sister, aged thirty-eight, who has been in a psychiatric hospital for ten years with a schizophrenic illness.

Birth was normal and there were no neurotic traits in childhood. He did well at school, particularly in mathematics, obtaining a scholarship at nineteen to Oxford. Prior to his examinations there, however, he developed an illness in which anxiety, depressive and obsessional features were prominent. This responded to electro-convulsive treatment. He then went to one of the London University colleges, where he obtained an Honours Degree, and then took up teaching.

His sexual life was immature, the patient denying any form of sexual experience.

Four years before admission, at the time of his examinations at London University, he became unduly tired and developed hand-washing and checking rituals.

At school, he found that marking work became increasingly a burden as he checked and re-checked all the figures. Immediately prior to admission, he had to leave his job because of these increasing difficulties.

On admission he was tense and showed the obsessive features mentioned above. There were no schizophrenic features present. He received four treatments with oral Sernyl (5 mg.), but he was never able to talk freely, with emotion, about any topic. He talked about his college life in great detail, but with a complete absence of emotional significance. At the fifth interview (after 7.5 mg. of Sernyl) he said, "I feel very sleepy—I do feel odd—giddy—drowsy, as if I am drunk." His talk was slow and there were long pauses between words and sentences. He had great difficulty in following a train of thought.

Sessions were continued, but at 5 mg., talk was unaffected and uninteresting, and at 7.5 mg., the thought block occurred. There was, on no occasion, any abreaction.

After ten treatments Sernyl was stopped and the patient treated with a tranquillizing drug, which appeared to be of some benefit.

METHOD

After a full psychiatric history had been taken, the patient was generally allowed to settle into the hospital routine for at least two weeks before treatment was commenced. The patient was then seen for two one-hour psychotherapeutic sessions each week. A capsule of Sernyl was given thirty minutes before the interview, the patient having had only a light meal beforehand. 5 mg. was given at first, but often this was increased to 7.5 mg. or 10 mg. until an optimum dosage was obtained. On several occasions 15 mg. appeared to be too large a dose, as side-effects were severe. At each interview, a particular topic was suggested to the patient and an attempt was made to keep the patient talking about this one topic. The interview was recorded by the therapist in writing. In addition to this drug-assisted psychotherapy, the usual active hospital regime was carried on, though none of the patients received any other form of physical treatment for their psychiatric condition.

OBSERVATIONS

The onset of symptoms is variable, but is generally 30–60 minutes after the drug has been taken and they persist for 1–3 hours. The symptoms, though less intense, are similar to those described after intravenous injection of Sernyl (Davies, 1960) and they will not be re-described. As previously reported, during the time of the drug's action, the patient often experienced relief from the obsessional symptoms. Early affectively charged "memories" were also described by three of the patients. In the first two patients, there was no doubt that Sernyl helped to produce affectively charged material that was of use psychotherapeutically. Some examples of this are given in the case reports. In the third patient, there were two severe disturbances after 15 mg. of the drug, yet the patient benefited from her course of treatment. The fourth patient may have derived some benefit from the treatment, but the fifth did not, as the drug produced thought blocking reminiscent of schizophrenia. The effects of Sernyl in each patient are shown in Table II, and the effects of the total hospital treatment summarized in Table III. It will be seen that though this drug did not help the fifth patient, yet he had improved at the time of his discharge from hospital.

TABLE II
Effects of Sernyl

Patient	Facilitated Talking	Abreaction	Severe Disturbance	Thought Blocking	Early "Memories" Evoked
1	+	+	0	0	+
2	+	+	0	0	+
3	+	+	+	0	+
4	+	0	0	0	0
5	0	0	0	+	0

TABLE III
Effects of Treatment

Patient	On Symptoms	On Social Adjustment	Psychiatric Assessment
1	Much improved	Much improved	Much improved
2	None	None	Unchanged
3	Much improved	Much improved	Much improved
4	Improved	Improved	Improved
5	None	Improved	Improved

DISCUSSION

The observations show that 5-10 mg. of oral Sernyl was usually helpful in promoting a free flow of emotionally charged material in the majority of these patients. Its effects, at this dosage, are neither severe nor long-lasting, and further investigations are clearly indicated. In particular, the relative long-term efficacy of Sernyl and LSD in a similar group of patients should be assessed. It is not the intention of this paper to maintain that abreactive treatment is necessarily beneficial in patients with an obsessional state. Kennedy's statement (1960) can hardly be improved upon:

"Where anxiety is nearer to the surface, cathartic methods will often bring some relief, but in some quarters the idea dies hard that abreaction should be made an object in itself. The main function of abreaction in the course of psychotherapy is to bring new material to the surface so as to allow patient and physician to assess its importance. The relief it brings is rarely permanent if the subsequent work of resynthesis is not taken up. In the case of obsessional states, a great deal of the psychotherapy that has been given has probably been wasted, for the long-term results are now known to be poor. The fallacy in treating obsessional states has been the belief that if psychopathological material of great interest and richness keeps appearing at the interviews, with strong abreaction, the patient will necessarily benefit. A common sequence in cases of obsession is that the appearance of symbol-rich material, often elicited with suspicious ease, is followed by great relief for a week or two. Patient and therapist then seek in vain to produce the same effect once more."

However, a safe, efficient, easily given abreactive agent would be of value and Sernyl, given intravenously or/and orally, may prove to have most of these qualities.

SUMMARY

Oral Sernyl (5-15 mg.) has been given on seventy-three occasions to five patients with long-standing obsessional illnesses. The drug appeared to be useful in assisting psychotherapy in the majority of these patients.

ACKNOWLEDGMENTS

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REFERENCES

1. DAVIES, B. M., *J. Ment. Sci.*, 1960, **106**, 1073.
2. *Idem*, and BEECH, H. R., *J. Ment. Sci.*, 1960, **106**, 912.
3. KENNEDY, A., *Lancet* 1960, **1**, 1257.
4. SANDISON, R. A., SPENCER, A. M., and WHITELAW, J. D. A., *J. Ment. Sci.*, 1954, **100**, 491.

A MONOAMINE OXIDASE INHIBITOR (NIAMID) IN THE TREATMENT OF THE MENTALLY SUBNORMAL

By

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A CLINICAL evaluation of the effects of a recently introduced monoamine oxidase inhibitor, N - isonicotinoyl - N¹—(β - N - benzylcarboxamido - ethyl) hydrazine (Niamid, Pfizer, Ltd.) on certain types of mentally subnormal patients has been carried out over the past year.

Several clinical types were selected for this study. All the patients were resident in a hospital for the mentally subnormal (mental defectives). Preliminary administration to a small pilot group confirmed the claim by the makers that the drug is non-toxic, and liver function tests and blood counts were all normal.

METHOD

From 30–150 mg. of Niamid in divided doses were administered for varying periods to the different categories of patients. Their ages varied from 4–70 years, and their I.Q. values from 25–80. At first most patients received 10 mg. three times a day for a week and this was maintained if there was an adequate response, but, if not, the dose was increased to 75 mg. daily. One patient received 300 mg. daily for several months without ill effect.

Several patients have received 75 mg. for over 10 months with impunity. No controls were used, but the drug was periodically replaced by an inert tablet, and it was then found that certain types, in particular the inhibited, apathetic mongols and the anergic type of schizophrenics, relapsed. The results reported represent the combined opinions of the medical and nursing staff, school teachers, occupational therapists and in a few cases those of the parents or relatives.

GENERAL EFFECTS

In those that responded there occurred, usually within about 5 days, but sometimes within a month, an increase in mental and physical activity. The patients became brighter and more “alive” and had a “sparkle in their eye”. A few became mildly euphoric, talked excessively and sang. This effect tended to wear off after a month. The total output of mental and physical energy was increased.

RESPONSE IN RESPECT OF SPECIFIC TYPES

(1) *Epilepsy*

Twenty-one epileptics whose I.Q.s varied from 30–60, and whose ages varied from 8–50 were observed. The most notable effect was to make them less moody and quarrelsome, and one patient who had been for years very ill-tempered and truculent, especially in the morning on waking, became very

pleasant and amiable and has remained so even after the drug was stopped. He may, in fact, have been suffering from a masked form of depression which responded to a course of Niamid. The drug had no effect on the frequency or severity of the epileptic fits, but because the EEGs of 3 patients became more unstable and showed an increase in spike activity, it was decided to keep strictly to an anti-epileptic drug regime.

(2) *Post-Encephalitic Parkinsonism*

There were 5 cases of post-encephalitic Parkinsonism, all adults. No great change was noted in this group, but 3 who were apathetic and regressed improved to some extent.

(3) *Mongolism*

The mongol group showed an unexpectedly good response. Of the 11 male patients whose ages ranged from 11–40 years, 7 were already pleasant and vivacious and no response was observed, but the other 4 who were apathetic and listless showed a much greater interest in their surroundings and work. It was observed that their complexion became clearer and the texture of their skin improved. An even more impressive response occurred among the female mongol patients, whose ages ranged from 6–30 years, and I.Q.s from 30–45. One mongolian woman of 38 years of age, who had never communicated verbally other than to make baby-like grunting noises and had never spoken in sentences, quite soon began to speak in very short sentences, but when the Niamid was stopped, there was a gradual slowing up of her speech and physical activity.

(4) *Psychopaths*

The other group that did well were those mental defectives who were in the hospital because of anti-social conduct, and who under the new Mental Health Acts will be categorized as psychopaths. Their general attitude to society is one of hostility. They are against authority in any form and are continually quarrelling with either the staff or the other patients. In a number of these cases, particularly among the females, there occurred an improvement in their general mood tone. They became more co-operative, more adult in their outlook and more understanding of the ordinary rules of society. Some who had become over-institutionalized and who had tended to be "sat on" by other patients, began once again to assert their individuality, not that this made it easier to manage them, but was an interesting response to the drug.

(5) *Hemiplegia and Diplegia*

The hemiplegic and diplegic patients did not benefit to any marked degree. In fact, the treatment made some more tense and aware of their physical handicaps, and consequently more unhappy.

(6) *Infantile Psychotics*

The small number of infantile psychotics did not benefit because they became more hyperkinetic and over-active, but 2 showed some social improvement when the drug was given in combination with chlorpromazine.

(7) *Schizophrenics*

Among most large groups of mental defectives there are to be found a number whose intellectual and social inadequacy is attributable to schizophrenia.

The disease is not active, but has left the patient apathetic, lacking in psychic dynamism and anergic and such cases exhibit great paucity of physical and mental activity. Several cases of this type showed a considerable increase in activity after receiving Niamid. As an example, a man aged 43, who had been slow in all his actions since he left school, but whose mental development was 11 years on the Terman, Binet-Simon scale, who usually took several minutes to pick up a few leaves from the park, and whose rate of walking was very retarded, was observed to have a marked increase in all his physical activity after taking Niamid for a week. His ability to carry on a conversation was also much improved.

The unmasking effect of Niamid in schizophrenia while undesirable in many ways can, on occasions, be of use diagnostically in differentiating between psychopathic personality and schizophrenia. As an example, a male

Diagnosis	Males			Females			Totals			Total
	***	**	*	***	**	*	***	**	*	
Epilepsy	1	2	2	6	10		1	8	12	21
Post-Encephalitic Parkinsonism ..		2	2	1			0	3	2	5
Mongolism		4	7	1	14	1	1	18	8	27
Psychopathic and/or antisocial conduct disorders	1	9	8	1	23	8	2	32	16	50
Hemiplegia		3	4			2		3	6	9
Spastic Diplegia			2		1		0	1	2	3
Schizophrenia				2	1	4	2	1	4	7
Infantile Psychoses					2	3		2	3	5
Totals	2	20	25	4	48	28	6	68	53	127

*** Indicates marked improvement. ** Indicates improvement. * Indicates no change

patient, 28 years of age, with a history going back to his adolescence of gross anti-social behaviour resulting in prison sentences, had been regarded as a typical psychopath. Because he had become depressed he was given treatment with Niamid, but after a few weeks on this drug was found to be suffering from delusions and had become markedly paranoid and later catatonic. The treatment with Niamid was stopped and he was given Perphenazine, whereupon he made a dramatic improvement in every way, including his anti-social behaviour, and for the past six months he has been better than he has been since his adolescence. In retrospect it seems most probable that all along he was in fact a case of schizophrenia, but the diagnosis had been so masked by his anti-social episodes, that he had been diagnosed as a psychopath, and that it was the Niamid that brought out the symptoms into the open and allowed of a correct diagnosis, and the initiation of appropriate therapy.

(8) *Phenyl-Pyruvic oligophrenia*

The brains of mongols and phenyl-pyruvic oligophrenics have a lowered content of serotonin and noradrenaline (Boscott), and on theoretical grounds an amine oxidase inhibitor might be able to restore the level indirectly by inhibiting the normal breakdown of these hormones. It may be, however, that their level is too low because the precursors of these substances are not available.

Two cases of phenyl-pyruvic oligophrenia were treated with 75 mg. of Niamid daily for three months. One of them, a female of idiot grade, 36 years old, who had a history of outbursts of screaming of many years' duration, but who had gradually become quieter and more amenable, after being given Niamid became very noisy once again. The ferric chloride reaction and the intensity of the

phenyl alanine spots on paper chromatography became more intense while she was receiving Niamid, but after it was stopped, fluctuation in the intensity of the phenyl alanine was noticed and in one sample of urine a month later no phenyl alanine was detected. Fluctuation in the output of phenyl alanine is, however, a well-known phenomenon in such cases.

The other case, a boy of 16 years of age with a mental development of 3 years, was given Niamid without any effects being produced, and then Niamid plus glutamine in the form of glutamic acid, a dram three times a day, but no clinical response was noted in this case.

CAUTION

The modern drugs which influence brain metabolism may be capable when used correctly of rectifying biochemical imbalances, but so far no tests are available to the clinician of telling the nature of the underlying factors which are at fault. It is certain that these powerful drugs may also produce, or markedly worsen, errors of metabolism when used injudiciously.

A side-effect of Niamid which has been encountered is an increase in tension and agitation amounting almost to hypomania. Some patients in this series have become hyperkinetic, and it can be taken as a general rule that where there is already physical and/or mental over-activity, Niamid will increase it. If it is still considered that Niamid is indicated, then this over-activity can be reduced by the concurrent administration of chlorpromazine.

SIDE-EFFECTS

These include increased anxiety, motor hyperactivity, tension, insomnia, hyperkinesis or hypomania in cases not controlled by chlorpromazine. In schizophrenia an exacerbation of symptoms may occur. This effect can be used diagnostically. One case of exfoliative dermatitis of severe degree with incontinence of faeces and urine and generalized muscular weakness was encountered after a patient was given Niamid and chlorpromazine, and one other patient developed a staggering gait, but this soon stopped when Niamid was withdrawn.

SUMMARY

Niamid, a monoamine oxidase inhibitor, was administered to a group of mentally subnormal patients in a hospital for such patients, and the effects clinically evaluated over a period of ten months. There is evidence that it has a stimulating effect on certain clinical types if they are apathetic, depressed or markedly regressed, in particular mongols, anergic schizophrenics and psychopaths.

A PSYCHIATRIC STUDY TOUR OF THE U.S.S.R.*

By

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INTRODUCTION

HAVING written a review of Soviet psychiatric literature some years ago without being able to see things for myself, I was eager to avail myself of my first opportunity to visit the Soviet Union, which came in the summer of 1959. Though the visit was not undertaken in any official capacity, preliminary correspondence secured a number of cordial invitations to visit a series of leading Soviet institutions, and soon after our arrival in Moscow permission was received from the Ministry of Health to pursue our visit on a "business" basis, which meant a reduced rate without benefit of personal guide services. My wife and I were thus for the greater part of our sojourn in the U.S.S.R. free to move about the cities of our choice and to seek out and visit hospitals, research institutions and child care facilities that interested us. My conversational Russian, though elementary, was sufficient for this purpose and in most institutions there were staff members who could speak English, French or German. With the single exception of Odessa, where the local health officer did not permit me to visit a chronic psychiatric colony some distance from the city, I was extended every possible courtesy and plenty of opportunity to see what I wanted. During the summer months unfortunately many of the leading research workers were away on vacation, schools and Pioneer Palaces were closed and almost all child care facilities moved out to the country, so that I was unable to get much first-hand information on the care and education of handicapped children, and missed some important people I would have liked to meet. On the other hand, several heads of institutions returned from their summer retreats to meet me in the cities and sometimes urged me to stay on or return again to see more things. Official autos were sent to pick us up and return us to hotels, staff members sometimes awaited us on our arrival in new cities and several festive tea parties culminated our institutional visits, with gracious and cordial exchange of toasts; we were constantly presented with books and gifts, and huge bouquets were given to my wife. Russian hospitality is typically warm and heart-felt, and was at this time especially motivated by the wish to form friendly ties with America and the West. Like most visitors, we could not fail to be impressed by all of this, and did what we could to respond in kind.

In nearly 7 weeks we visited 8 cities: Moscow, Leningrad, Kiev, Kharkov, Tiflis, Sukhumi, Yalta and Odessa, and enjoyed a pleasant few days on a Black Sea cruise. We spent almost all our time visiting institutions, some of it visiting sights, saw all kinds of Russians, and spoke with scores of them.

* From the Department of Psychiatry, New York State University, Downstate Medical Center. This trip was supported by a grant from the National Institute of Mental Health as part of a larger study of Soviet Psychiatry (M-2679).

I shall attempt to describe things as I saw them, postponing more detailed description and deeper analysis for some later occasion, after more information is gathered.

Moscow

Actually the first contact we had with Russia was on the jet plane which carried us from Paris to Moscow in a little less than three and a half hours. The plane left promptly on the minute, and arrived almost as promptly in Moscow, with a ride that was smooth, sure, and comfortable. Surprisingly enough, only about one-third of the seats were occupied. After having been badly cramped in an economy seat for the transatlantic crossing, it was a pleasure to have a little extra space in the tourist class of this Russian jet plane. The appointments of the plane, though by no means lavish, were comfortable, and the interior of the plane was fitted out in rather home-like style. I noted that nets were used, for example, to hold the baggage overhead, which kept the baggage from slipping out, as it sometimes did in our sleeker American planes with metal baggage racks. The galley was amidships, sealed off with drawn curtains, larger and more comfortable than ours, and I think this made cooking conditions much easier for the three competent and pleasant stewardesses, who conducted themselves with quiet home-like efficiency. The meal served was good. I had my first taste in a long time of Russian caviar, followed by delicious roast chicken, better than the cold chicken served to us on the foreign line transatlantic crossing; and the portions were ample, with particularly large servings of bread.

Arriving at the Moscow airport after a smooth landing, I was impressed by the large number of people awaiting the relatively few plane passengers, and the unusual warmth of the reception some of the Russian passengers were accorded by their families, who arrived with bouquets of flowers and greeted them in royal style. The airport terminal itself was a drab structure; the large waiting room had pretensions to a spacious classical style, but here, as elsewhere in Moscow, the details of the workmanship were not up to the grandeur of the plan. There were a number of porters around, some of whom stood sheepishly about, waiting for things to do or perhaps not expecting anything to do, which seemed an inefficient waste of manpower. I could however observe the energetic capabilities of the young women who acted as officials in various capacities. These were the equivalent of some women union organizers I had met in New York; with a competent eager manner, remarkable facility in the use of American vernacular English, and a general aura of efficiency about them. There were a number of manoeuvres in which we surrendered our passports, only to retrieve them again after half an hour's wait, a procedure that was later repeated in every hotel we visited.

Our movement into the city was in a large Russian auto, fitted with some shabby carpeting and chauffeured by a rugged Russian, who dealt with us rather casually, answering questions put to him directly, but making no effort at conversation. Here, as elsewhere, the people with whom we had dealings were friendly, though there was never any sign of servility or obsequiousness. The porter who carried our luggage to the ninth floor of our hotel room waited in the anteroom in obvious expectation of a tip. We had no Russian money on our persons, and were furthermore taught to believe that tipping was abolished in the U.S.S.R. I thanked him with a "Spasibo, tovarishtch!" to which he responded with alacrity and left.

We met a couple of New York friends in the lobby. This lobby was also conceived in the noble classical style that we met later in the subway, with plentiful use of marble, though the furniture seemed sparse and rather inadequate, making it all look much like a spacious new apartment where the furniture had not yet arrived. The dining hall, which we later visited, was similarly grand; a mediocre band was playing inferior jazz, apparently to satisfy the taste of foreign visitors. The chandeliers were large and crystal, but the table cloths were spotty and the floor much in need of a good sanding and shellacking, since it was marred by a variety of stains, and we saw one waiter toss a piece of undesirable meat to the floor. The waiters looked a little bit on the shabby side, though they were also friendly enough and fairly efficient for we did not have to wait unduly long for our service. Later we developed a conversational relationship with our waiter, gave him a souvenir picture post-card of New York, which he seemed to appreciate very much; he evinced a special interest in the U.N. Building, wanting to know how many stories high it was, and asking some rather well-informed questions. Our first dinner was a lavish meal of sturgeon, borshtch, shishkabab and ice cream, supplemented by a good bottle of Russian wine, though the cost of the meal exceeded our quota of roubles for an evening meal, and we decided to go easier on our food intake next day to make up for it.

Our first impression of Moscow was of a real working class city still raising itself through energetic efforts from the devastation of the war. We had seen block upon block of construction of new apartments as we approached the city, some of them already occupied, but with the pavements in front of the houses still unfinished. There were very few private autos, quite a few buses, and a general seriousness and perhaps drabness in the appearance and clothing of the people. Our first impressions were on the whole favourable. The large new radio in our hotel suite however did not work, our shiny television set was good at reproducing sounds, but we could not get a picture out of it. Here at the hotel, as in the airport and in the limousine, the details of workmanship were not up to the pretensions of the planning, but we decided not to draw any conclusions too quickly and looked forward to the accumulation of further impressions.

Next day, Wednesday, 9 July, we had a busy and hectic day, starting with persistent efforts all morning to contact some of the people we wished to see, and especially to make contact with the Ministry of Health, so that I could prolong my stay. The hotel telephone, though a dial phone like ours, seemed to be far less efficient. Repeated calls had to be made before a response was secured and "engaged" signals were frequent. Since no phone book is available for the city a phone number is a kind of card of entrée passed on to a person you know. We finally succeeded in reaching Professor A. R. Luria, who was working that day at the Burdenko Neurological Institute. Before visiting, however, our guide thought it would be well for us to take a small tour of the city, especially to see the Metro, which she proudly displayed to us by taking us through half a dozen different stations. The Metro itself is certainly a notable achievement, the population makes great use of it and is justly proud of it. The ornate conventionally classic style of the stations seems to correspond to the tastes of the deposed upper classes, contributing perhaps to the psychological feeling that the workers now have the best, not only in the riches but also in the living style that the titled aristocracy once enjoyed. The Russians seem to like gilded cornices, crystal chandeliers, marble halls and classical columns, all contributing to the kind of architectural

style that we in America tend to relate to our more lavish movie houses or large banking institutions.

The people seen in the subway were remarkably similar in appearance, dress and manner to each other, all of them serious, businesslike, plainly dressed, the women usually in cotton dresses, the men in working clothes without jackets, and seldom with a tie. They looked like a hard working, intent crowd, who had borne the heavy burdens of revolution, famine, devastating wars, the cold war, and the difficult reconstruction period of recent years. Where the large throngs came from in the middle of the day I could not guess, since they all seemed to be busy working people. The crowds conducted themselves with polite decorum, observed all the rules for pedestrian traffic, always standing on the right of the escalators, for example, to allow others who wished to move more quickly to use the left side.

We saw the Kremlin, the Red Square, the G.U.M. Department Store, and the line of people blocks long waiting to pass through the mausoleum of Lenin and Stalin. The general architecture of the city, with its stucco faced buildings, was reminiscent of Vienna, and seemed to be typically East European. The structures were mostly old and dull but all adequately clean and in good repair. But there were a few larger structures that were rather imposing and ornate, like the Moscow University and our own Hotel Ukraine.

The Neurosurgical Institute was far from ornate. It was a shabby old building, but clean within. There we met Professor Luria and found him a friendly, businesslike, efficient, and very helpful person. He quickly set about listing the institutes we ought to visit, making a number of phone calls to contact the authorities involved. He spent about one and a half hours with us, but our conversations were interrupted constantly by return phone calls and messages to arrange our visits for the next succeeding days. In addition to these preparations, he spent about half an hour sketching for us the position of psychology in the scientific scheme of things, describing briefly his own activity and point of view in the field of retardation, drawing diagrams and sketching notes for us as he proceeded. He made it clear to us that he was professionally a psychologist and not a physician (in spite of the fact that he also had medical training) and described his role as descriptive and analytical, not even diagnostic. He said the role of a psychologist is to do basic research, and to describe and analyse data so that the physician can be aided in his work of diagnosis and treatment and the teacher helped in educational problems.

He was particularly emphatic in his rejection of the I.Q. concept and again he drew a little diagram for us to show how an I.Q. of 65 might mean quite different things in 4 children: (1) an intrinsic biological brain defect, (2) a state of general asthenia of the nervous system due to malnutrition or some debilitating illness which could be compensated for in later life, (3) the presence of some sensory or motor defect, such as a partial deafness which could hamper speech development, which in turn would hamper psychological development, or finally (4) an I.Q. of 65 might be encountered in a physically normal child whose education had been side-tracked or postponed by some incident or disease, which might take him out of school, so that he would fall behind his peers in school work and general intellectual development and might suffer thereafter educationally as a consequence. So that, he said in conclusion, the I.Q. can never give us more than quantitative results. For significant information we need to go into other types of analyses. He repeated the figure that the British psychologist Dr. Tizard had quoted in a recent article—that less than

one per cent. of the school children displayed a backwardness that could be ascribed to some biological deficiency, and added that there was perhaps another one per cent. whose backwardness might create some special educational problems, though the deficiency was not basically a biological one. But, he warned, this is a field in which specific statistical information was hard to get and he was only making approximate estimates.

That evening we spent a few hours at the Gorky Park, or Park of Culture and Rest, enjoyed its spaciousness and noted that the shabby workers we had seen during the day appeared at the park in clean clothing, evidently relaxed and happy, enjoying the excellent outdoor music bands and exhibits, or moving about in family groups. We spent an hour at a small circus, which we enjoyed thoroughly. All of the acts were very skilful, the rapport between the audience and performers was excellent. It was a pleasure to see the thorough enjoyment and loud laughter of the audience at the pranks of the clowns. The clowns traditionally spoke their Russian in a British or American accent, and some of their skits lampooned the manner, pretences and jazz interests of Americans. Unfortunately we had to leave the circus to meet our taxi just at the conclusion of one of these mildly anti-American spoofing acts, and the girl usher looked at us with concern, thinking we had been offended, since she seemed embarrassed by our abrupt departure. We were not offended, however, and regarded the period spent there as one of the pleasantest so far in Moscow. We found our taxi chauffeur reading a Russian translation of a George Sand novel, and he discussed Dreiser, Jack London and Hemingway with us on the way home.

INSTITUTE OF HIGHER NERVOUS ACTIVITY

Next day we arrived at the Institute of Higher Nervous Activity at about 10 a.m. according to arrangements made by Professor Luria. We found a group of some 6 or 7 physicians and research workers waiting for us in the office of the acting director, with a young Dr. Aslanov, the scientific secretary of the Institute taking an especially helpful interest in us. The discussion was competently translated by a young woman physician with a good command of English. Unfortunately our limitations of time permitted only a quick review of the activities of the clinic and only allowed discussion of a few major points of interest. We were told that a great variety of projects were currently under way. Particular interest was now being paid to the analysis of the higher nervous functions in the psychoses, in the neuroses and alcoholism, and a series of studies had been undertaken to study the effect of the newer drugs, particularly chlorpromazine and reserpine, on higher nervous activity, with a view to determining some rules of dosage other than the empirical ones now prevailing. I was interested to hear from Dr. Aslanov that they too in their work had found a phasic change in the chlorpromazine effect, depending on dosage and on the condition of the organism, but with a reversal of its effect on higher nervous activity at about 4 hours after administration of the drug, which suggested that something similar may be happening on this level to what we had observed in the reversal of the inhibitory effect of chlorpromazine on brain oxidations in our rat experiments. In addition to experiments on human subjects, we were told that a number of problems were being pursued in animal work.

A great deal of research, we were told, was still being done on the experimental production of neuroses. The Director, Professor Rousinov, who

was away on vacation, spends much of his time doing related research work at the Neurosurgical Institute, with a broad interest in the interrelationships between cortical and subcortical activities. There is a busy laboratory for electroencephalographic studies, and they were especially interested in demonstrating to me the rather remarkable encephaloscope, which is a newly developed apparatus, which permits the simultaneous recording of 100 points on the cortex by means of an ingenious cathode ray oscilloscope technique that projects the points of activity in illuminated dots and represents the voltage intensity by gradients of vertical lines, so that interesting correlations of synchronous activity can be made in various types of study. We witnessed a rabbit being investigated in that manner. When I complimented them on their technology they promptly told me that the apparatus was based on an American model.

Another field of current interest is the physiological and pathological effects of ionizing radiation both on the foetal and mature organism. The effects of chlorpromazine on various types of conditioning were also being studied. There is a separate big institute and laboratory dedicated to the study of the normal neural activity of children of school age. Because of my expressed interest in some of the clinical aspects of their work, I was driven over to the Neuropsychiatric Clinic of the 8th Moscow District, one of a number of district clinics of this sort, which because of its proximity to the Institute is used as a clinical branch for investigative work. The experimental setting there is described as a laboratory for the study of the pathology and therapy of the higher nervous activities of man, and it has available for this purpose a male and female in-patient service totalling 100 beds. This portion of the research activity is amply staffed, and the staff includes several former pupils of Pavlov. The main current interest of this group of workers was described as a study of the interrelationship between the 1st and 2nd signal system, as well as the study of the interrelationship between cortical and subcortical activities. Several of the projects are concerned with the effects of psychotherapy and with analysis of the mechanisms of psychotherapy, although the group was at some pains to explain to me that their conception of psychotherapy envisages all psychological factors that can be thought to bear therapeutically on the patient, including the effect of group activities, group influences, and the direct therapeutic influences brought to the patient by medical personnel. We were told of an interesting new vasodilator and hypotensive drug of complex composition, described as SDK, said to contain saponines, which appears to have an ameliorative effect on mental disorders associated with hypertension and arteriosclerosis. We were told that this agent reduced headaches, dizziness, tinnitus, relieved excitement, elevated the emotional state, improved sleep, work capacity, hearing and memory, lowered the blood pressure and was currently under review by the Health Ministry to determine its suitability for general use. A number of patients, we were told, recovered sufficiently to return home after use of the drug.

In connection with schizophrenia, we were told that special attention is now being paid to studies of paranoid and catatonic forms. Schizophrenia in the Soviet Union is now regarded generally as a specific disease entity, though it is recognized that a schizophrenic-like syndrome can occur in response to a variety of aetiological agents. Interest is being focused on the reduced autonomic responsiveness found in schizophrenia, especially in the chronic forms. Both insulin and sleep treatment are being used. A favoured technique for sleep treatment consisted of a course of 8 to 10 days of protracted

sleep induced by a mixture of medinal, sodium amytal, allonal and pyramidon, used in minimal doses so that there is no real danger of pneumonia; antibiotics are not regarded as necessary. The patient is permitted to sleep for 22 hours of the day and is roused for a 2 hour period daily. In recalcitrant cases this treatment may be combined with electroshock, which is given just before the initiation of the sleep treatment and is followed by a 36 hour period of sleep. This course is repeated 4 or 5 times, and the results are described as satisfactory in severe chronic cases, especially in catatonic forms. We were told that the medicinal induction of sleep is generally superior to the electro-narcosis type of sleep, which is also used but cannot easily be protracted beyond a 3 hour period. In general, we were told that insulin treatment is the treatment of choice, especially in acute cases, and is usually preferred to the use of drug treatments. Insulin coma treatment was described to us as practically in universal use throughout the Soviet Union, but it was emphasized to me that treatment must always be individualized and that no one treatment is necessarily the best for all individual cases. In response to my question, I was told that about 60 per cent. of the cases of recent onset go into fairly protracted remission lasting for at least 2 or 3 years, with the treatments presently being used.

We had an opportunity to visit several of the wards of the Neuro-psychiatric Clinic. The building itself was an old one, the quarters for the patients were cramped and cluttered, by our standards. There was a good deal of crumbling stucco, unfirm carpentry, and worn flooring. First priority, we were told, must be given to housing construction after the devastation of the war: institutional construction must wait another two years. In spite of this, the places were kept clean, free of odours, and the atmosphere among the patients we saw, including some very disturbed patients, seemed excellent. We were there at meal time. The patients welcomed us and invited us to join them at their dinner. We noticed two nurses sitting beside a young catatonic patient, coaxing her to eat with great patience, kindness and persistence. We were told that forced feeding is almost never used. If necessary, a sodium amytal injection would be given, combined with caffeine, to calm a disturbed and frightened patient so that he could be coaxed to eat. Restraints are not now used anywhere in the Soviet Union. We saw the most disturbed ward and found it relatively quiet, with several asleep. In a ward where we counted 8 patients, there were 2 nurses and 2 nursing aides—a ratio of 2 patients to 1 nursing person. These rooms too were spotlessly clean, and our impression of both the medical care and the psychiatric atmosphere was quite favourable.

INSTITUTE OF PSYCHOLOGY

Later in the day we visited the Institute of Psychology, which is a part of the Pedagogical Academy of Sciences. The Institute is a separate building located in the grounds of the old university and here too, through the good offices of Professor Luria, we were cordially received by the acting director, Professor Shevarev. This institute was formerly directed by Rubenstein, and is also the place where Professor Teplov is now active, though he was away on vacation when we were there. Here too a great variety of projects are being pursued by a large staff with extraordinarily fine, complex and varied equipment. Professor Shevarev said that in general they are developing their work along Pavlovian lines, though he said things are now found to be more complicated than Pavlov thought, from his animal experiments: Pavlov's so-called

"weak" types for example can no longer be regarded as abnormal, but should rather be regarded as basically hypersensitive types, and this hypersensitivity involves quite a few assets in human psychology. Human beings, concluded Professor Shevarev, are far more complicated than dogs. Psychological work at the Institute basically consists in the analysis and interpretation of human behaviour, particularly in its relationship to the learning process. Much interest is being expended on the study of native talents or potential capacities. Teplov and others are quite convinced, we were told, that musical talent is basically inborn; opinion still differs on whether mathematical talent is similarly inborn, though Professor Shevarev thought this was highly probable, particularly if we speak of the inborn lack of mathematical talent. He was not certain that there was such a thing as native linguistic ability, and spoke cautiously about the native differences in general intelligence. It is probable, he said, that the potential for intelligence is inborn, perhaps in part because of the damaged brains of some individuals, but in every case the development of the potential depends on many things in addition to the native intelligence, not only education in the strict sense of the term; a variety of other influences, including some fortuitous ones, may influence intellectual development significantly. He was not prepared to say how wide the range of normal differences might be in human beings, and said the matter is still obscure.

Much of their work, in addition to its relationship to teaching, has relationship to applications in industry. Professor Shevarev was glad to tell us that in one project they undertook in one factory, involving multiple studies of the work activities of the individuals, their fatigability, etc., production could be increased by 20 per cent. When I asked whether this increase was due to a change in production methods or by more specific psychological techniques, he said the two cannot be distinguished. Once you analyse a problem, all factors enter into its solution, and they are glad to contribute to such a helpful analysis.

We met Professor Zaporozhets, who spoke to us at some length of his very interesting work on habit development and the learning process. He was emphatic in declaring that habit formation in normal children cannot be reduced to a direct study of the activity involved, but also involves a second factor: the general exploratory activity of the individual. These two factors, the general vigilance or exploratory interest of the individual, plus the actual work activity itself, are interrelated in complex ways, and are sometimes even antagonistic in their action. He has conducted many studies on these interrelationships and feels that they amount to a general theory of learning. The nature of this exploratory activity is bound to the stage of development of the child. In earlier life the exploratory activities tend to be more concrete, tactile, as well as visual and auditory. In the older child they are frequently comprehended in the visual activity alone.

When I asked about the general status of psychology in the Soviet Union, I was told that approximately 1,000 qualified psychologists can be found in their national organization, most of these being teachers and experimental workers. Psychologists, said Professor Zaporozhets, are not actually at the present time placed in the schools and do not participate in any capacity in dealing with problems of conduct. Our main task, he said, is to study and improve methods of teaching at schools. We hope, he added, to develop a profession of applied psychology, and we picture it as being involved primarily in problems of work, both in and out of school, and we would welcome greater opportunities to deal directly with the individuals. We do not anticipate that

there can be any conflict of interest with psychiatrists or other physicians or to practice psychotherapy. In time our professional activities will no doubt expand. In response to my query as to whether any of the Russian psychologists were interested in problems of sex psychology, he responded simply with a polite "No" and Professor Zaparozhets added that there is no interest in Freudianism in the Soviet Union at the present time. In response to another query of mine on instinct, Professor Zaparozhets told me that Professor Basin, a psychiatrist in Moscow, is currently interested in instinct theory. I was then presented with the newly published first volume on the Psychological Sciences in the U.S.S.R., and was told that this includes a comprehensive bibliography which would be of help to me in my further studies.

INSTITUTE OF DEFECTOLOGY

Professor Luria invited us to meet with him again, this time at the Institute of Defectology, on Friday, 10 July. We arrived promptly and found ourselves in the company of Dr. O'Connor, a British psychologist associated with Dr. Tizard, and we all had an opportunity to meet with some of the staff while awaiting Professor Luria. We did not meet with the Director of the Institute, Dr. Brakov, though we spoke briefly with a motherly, composed and intelligent woman named Natalia Morizova, who was introduced to us as the vice-director in charge of scientific work. We were told there was another vice-director charged mainly with administrative duties. Dr. Morizova described briefly to us the administrative organization and some of the activities of the Institute until Professor Luria arrived, apologizing for his lateness—only 10 minutes—by saying that the arrival of the Emperor of Ethiopia in Moscow had produced quite a traffic jam. Dr. Luria seemed to be the most "Western" in manner and temperament of all the scientists we met. He spoke a rather fluent English, seemed to enjoy wide international contacts, and was surprisingly alert to our special interests. Dr. Luria now took over the description of the Institute from Dr. Morizova, told us that it was part of the Academy of Pedagogical Sciences and that it was divided into 12 sub-divisions charged with various responsibilities in dealing with the research aspects of different defects. It was described as the only institute in the Soviet Union that deals with problems of abnormal development or, more correctly, with the psychological problems connected with abnormalities such as deaf-mutism, speech disturbances, blindness, mental deficiency, etc. Dr. Luria said that almost all psychology in the Soviet Union is connected with pedagogy; only a few psychologists are assigned to work in the medical or philosophic institutes or in some of the medical or other related fields. Though the Institute has a purely research function, and does not itself engage in the training of special teachers, it maintains close ties with teaching institutions and is closely allied with a special school for the handicapped, where special teachers were trained—though this was now unfortunately closed for the summer vacation period, when children are expected to be out in the country. All of the various departments of the Institute of Defectology are concerned with the basic problem of analysing the needs of these children so that both better diagnostic methods and improved teaching techniques can be developed. Much emphasis is placed on the improvement of diagnostic skills in these areas and occasional consultations are requested by other institutions for the study of especially complex or serious cases. Dr. Luria said there was a total of 60 scientific

workers active at the Institute, of whom some 10 or 15 were psychologists, some 7 or 8 neuropsychiatrists, and 20 could be described as "pedagogical scientists"; these were scientific workers recruited from the teaching profession. Actually the research activity of these various professional groups is scarcely distinguishable. In answer to a query of mine, he said only 1 or 2 pediatricians were involved in their work, mostly in a consultative capacity, and that the institute has no close tie to pediatrics. Dr. Luria's own area of interest currently centred around problems of diagnostic differentiation. Here he distinguished three main sets of problems: first, the problem of distinguishing between the truly feeble-minded with organic deficiencies and the pseudo feeble-minded whose educational backwardness had other than organic causes. The second group of subjects with whom he dealt were those with various sensory defects—visual, auditory or others. The third group were those with cerebral palsy or motor defects. In elaborating his description of his work, Dr. Luria declared that Dr. Eugene Sokolov, working at the Institute, had succeeded in measuring one important feature of mental deficiency for the first time in an objective way. He went on to explain that a child might fail at a learning task for any of several different reasons: possibly because of lack of specific experience, or because the child was actually organically feeble-minded, or because it had a sensory defect, or because there was some failure of attention. The work of Dr. Sokolov now made it possible actually to measure the intensity and extent of the attention or the orienting activities of the individual by means of EEG tracings and plethysmographic records, involving changes in the vascularity of the fingers and changes in the dilatation of the vessels of the scalp, especially the temporal artery. These simultaneous records now made it possible not only to measure the span of attention but also to gather data on the point of sensory discomfort experienced by a subject when his attention is over-extended or over-excited. These measurements have thus proven to be very useful in the design of various types of equipment for the use of these handicapped individuals so that for example the design and adjustment of hearing devices can be more rationally planned. The psychogalvanic reflexes, Dr. Luria added, are also of some use in these measuring techniques, but the other three measurements appear to be more basic.

Then followed a rather detailed description of Luria's own work in the measurement of attention reactions and its relationship to verbal reinforcement. Though the attention reaction may be reinforced by verbal means in the normal subject, Dr. Luria found it was characteristic of mental defectives that this verbal reinforcement tends to fail. On the other hand, the mental defective is readily reactive to a strong external stimulus, which fits in with some of our clinical knowledge of the distractibility of some defectives.

Dr. Lubovski, one of his associates, elaborated on some of his current work, which singles out the characteristic inertness or lack of plasticity of the higher nervous processes as one of the most important peculiarities of the feeble-minded. Here too, a good deal of experimental evidence was described to develop this concept of the lack of plasticity among the feeble-minded. Dr. Lubovski, in answer to a question, said he anticipated that this inertness would prove to be a physiological or psychological factor, rather than a result of pathological anatomical defect in these individuals. Dr. Luria made mention also of the successful use of some new anti-cholinesterase drugs for the relief of motor disabilities.

Dr. Pevsner, a psychiatrist whose new textbook on mental deficiency was

soon to appear, spoke with us for a while, and she too emphasized the importance of narrowing the concept of mental deficiency or oligophrenia, as Soviet physicians prefer to say, to those children who can be presumed to have suffered an actual brain injury in intrauterine, paranatal, or early infant life. She said it was reasonable to assume that the most characteristic pathological basis for this group of true feeble-minded cases was a diffuse lesion of the cortex. She felt one ought to exclude from this group epileptic, schizophrenic, or children suffering from other medical disabilities. She also felt that one should exclude those cases where the disability is really a debility or asthenia of the nervous system, that neurotic children should be excluded and those normal children who have an uneven tempo of development and who may get off to a slow start. Also, the group of children with sensory or motor defects should be excluded from the group of true feeble-minded. Dr. Pevsner acknowledged that there were some hereditary forms of mental deficiency, such as tuberous sclerosis and other rare entities, but felt that the primary factors should be regarded as exogenic.

In further discussing her notion of the importance of the pathology of diffuse cortical injury, she acknowledged that certain other associated factors may be encountered, mainly of two kinds. She felt that hydrocephalus was a common associated factor in mental deficiency and felt too that a superimposed focal lesion may complicate a diffuse brain injury. Physiologically, Dr. Pevsner also felt that the crucial factor in the understanding of the pathogenesis of mental deficiency was the inertness or immobility of the feeble-minded child's reactions. Dr. Luria interposed that things may not be quite so simple, and Dr. Pevsner acknowledged that the element of permanent anatomical defect must enter into our thinking too, though the anatomical defect may well express itself. Dr. Pevsner thought, by contributing to the physiological inertness or lack of plasticity. From an evolutionary point of view, Dr. Pevsner emphasized that the mammalian brain has successively gained in plasticity, and the lack of plasticity could be regarded as a lower stage of brain development. From a clinical point of view, a leading symptom among mental defectives is their lack of capacity for abstraction or conceptual generalization. Three types were distinguished by Dr. Pevsner where the lack of plasticity could be described along Pavlovian lines: one type in which there can be found a weakened capacity for both excitation and inhibition; a second type in which the inhibitory functions are weak these are the restless or excited children; and a third type in which the excitatory processes are weak. These are the torpid, indolent children. In dealing with these types, the hyperactive child is first taught inhibition by external restraint, so that a teacher may actually hold her hand over the mouth of a child or restrain hypermotility. At a later stage the child may be expected to impose, so to speak, his external restraint upon himself by clapping his own hand over his mouth, and at a still later stage the restraint becomes subjective, and this is an important gain for the child.

In answer to a question, Dr. Pevsner said that these various types are not segregated in special classes, but the special teachers are instructed to individualize their understanding and approach to these children. Dr. Pevsner felt that some of the newer drugs, including both stimulants and tranquillizers, could be usefully employed in correcting faults in these children, but she felt that the most important work is in the educational field and laid special emphasis on the correction of personality faults, such as impulsiveness. She also emphasized the regulatory role of both speech and activity.

Many of the experiments described at the Institute of Defectology were difficult to follow in detail, though they seemed important, and certainly worth more leisurely and detailed study. I was supplied with a number of books by our kind hosts, which are now being carefully studied at home.

In conclusion, Professor Luria indicated that much remains to be done to develop the work and importance of psychology in the Soviet Union. "There is a big discrepancy," he said, "between what we do in Moscow and what they do in Siberia, for example, where they may not even have psychiatrists available for their schools." He felt confident that in a matter of years these shortcomings would be corrected. Though Professor Luria insisted that psychologists do not and should not do clinical work or make clinical diagnoses, he felt their services could be much expanded and better utilized by both schools and psychiatric institutions.

KASHCHENKO HOSPITAL

One of our most enjoyable and interesting days in Moscow was spent visiting the Neuropsychiatric Clinic No. 1 of Moscow, known as the Kashchenko Hospital, whose director, Dr. Alexander Laurentievich Andreyev, was our host for the better part of the day. This gave us an opportunity to visit the children's section of the institution where we met the eminent child psychiatrist, Professor Sukhareva and her associate, Professor Simson. This hospital is another one of the eight Moscow district hospitals, one of which we had previously seen in connection with our visit to the Institute for Higher Nervous Activity. On this occasion Dr. Andreyev, a serious and elderly man, with some knowledge of my interests and work, received us most cordially in the usual manner by asking us into a conference room with a long green covered table. He sat at the end of the table with an associate woman physician at his side, and proceeded to read from a document in systematic style, giving us the past history of the institution, acquainting us with some of its traditions, and particularly emphasizing the huge contrast in the quality and size of the facility since the October Revolution. Built originally in 1894, with contributions from the Moscow population under the sponsorship of a certain Alexandreyev, the Moscow mayor of the time after whom it was first named, it later became known as the Konochikov County House, because it stood on the estate of that name, and is still so known to the local population. In pre-revolutionary days it had 805 beds, and a total staff of 168, including 6 physicians, 14 nurses, and 143 aides and attendants. It then operated on an annual budget of 200,000 roubles. Of particular interest was the fact that the present ratio of staff to patients was almost one to one, with a staff of 2,210 for a patient load of 2,400, the staff consisting of 168 physicians, 600 nurses, the equivalent of our registered nurses, and over 1,000 attendants or aides, as well as over 300 technical assistants, mechanics, cooks, etc., exclusive of housekeeping personnel. The annual budget now amounts to 40,000,000 roubles a year. In terms of commodities, the rouble is roughly equivalent to 10 cents—the tourist rate of exchange. In terms of salaries, the rouble is worth much more, since 1,000 roubles a month can pay for the services of two maintenance workers, and 1,200 could pay for a physician.

The hospital is mainly an acute service. Patients are usually not kept there longer than a few months or a year; chronic cases are then transferred to chronic hospitals. Of the 2,400 beds, 240 are reserved for children.

It was a pleasure to look through this well kept hospital. Though the

structure was by no means new, it was pleasant and extremely clean, the rooms were homelike, with plentiful use of potted plants and ferns, and the patients were obviously made to feel welcome, were accorded kindly and most adequate nursing attention and, from all that I could see, excellent medical care. The disturbed ward was relatively quiet, the sedated patients seemed to be sleeping easily in bed, and other patients were quite well controlled. In the convalescent wards the patients were beaming, and in the outside gardens a number of them were seated or strolling. They looked quite normal to us, and a group of them on a bench, with Dr. Andreyev's encouragement, agreed to sit smiling for us while I snapped their picture.

Particularly enjoyable was the visit to the children's building some distance away from the main hospital building. There we were joined by Professors Sukhareva and Simson, two rather large short women; Professor Sukhareva gave an impression of maternal competence; Professor Simson, a large and mild woman, also seemed serious and competent, and both of them were extremely friendly to us. We met a large group of the children out in the gardens, since none of the children were indoors on this pleasant day, and here too we could scarcely detect any abnormalities of attitude or behaviour in the group of some 30 children that we saw. They ran eagerly to us when my wife offered to distribute a few picture postcards with New York scenes, and since so many of the children seemed disappointed not to have pictures, we were tempted to distribute some of the shiny copper American pennies we had brought along. After a quick conference between Drs. Sukhareva and Simson, Dr. Simson said mildly it was probably best not to distribute the money.

We then sat in the garden arbour for about an hour, exchanging views, sipping tea, eating open sandwiches, cakes and oranges, and the occasion proved to be delightful. Actually in the exchange of views nothing very new emerged that I had not been previously acquainted with from the literature. They had a number of queries to address to me about the state of American psychiatry, but I find I have very few notes, no doubt because very little new information was offered to me.

The workroom of the children was most interesting and amusing to us, since it consisted almost entirely of small animals, pigeons in cages, goldfish in their tanks, hamsters, hedgehogs, rabbits and mice, all of them well kept in their enclosures, almost entirely free of unpleasant odours. Professor Sukhareva said simply that children love animals and added that an autistic child that would not relate to any human being would often relate very well to a pigeon that was placed in the child's care. Outside in the garden there were other caged animals, including a monkey, and everybody seemed to enjoy the menagerie. I recall Professor Sukhareva mentioning that autism was a symptom encountered in a variety of conditions; in her opinion it apparently did not correspond to an entity. I also recall some mention of the use of insulin in a child with schizophrenia. She made much of a particular common neurotic syndrome that interested her, in which the children refused to eat because they want to remain thin. I assume details of these interests of hers will be found in her writings.

Dr. Andreyev insisted on presenting my wife with some samples of the patients' handicrafts, taken from a display case. At another point, as we proceeded through the gardens, my wife was presented with a large bouquet of flowers. The period of exchange of views came to an end, we thanked our hosts and departed after an afternoon that was unusually pleasant.

KORSAKOV INSTITUTE OF PSYCHIATRY

Two days later I met with Professor Popov, who returned to his empty clinic from his vacation to meet me. I have full notes of his remarks, since he delivered them to us in his small office in deliberate professorial style in rather good German, and I also found that his remarks to me corresponded pretty fully to the remarks addressed to Dr. Zigmund Lebensohn and reported in Dr. Lebensohn's recently published report. He conducted us through the empty teaching hospital, which is not used during the summer vacation period, since it is primarily a teaching hospital where patients are seldom kept more than a month or two during the active school year and are usually transferred to other hospitals after their teaching and research uses are over.

Professor Popov explained that at the Korsakov Psychiatric Clinic neurology is separated from psychiatry, and that the two specialities have been separated in the medical schools since the Revolution, though hospitals unaffiliated with medical schools still treat both kinds of cases. Nevertheless the term neuropsychiatric is preferred for psychiatric hospitals like the Korsakov Clinic, since the word "psychiatric" still sounds forbidding.

Medical schools in the U.S.S.R. are no longer medical departments of the Universities but are now established as separate Medical Institutes throughout the U.S.S.R. except for the smaller provincial universities. Medical schools have separate divisions: public health, pharmacology, dentistry, etc. All medical students receive a basic training, supplemented by additional training in one or more of the special divisions. Korsakov Clinic has responsibility for medical student instruction, postgraduate training, research and treatment.

We got along very well. I found Professor Popov's views in general congenial, though they seemed, as is so often the case, to be a little too formally Pavlovian, with a tendency to neglect more refined psychological description and diagnosis, and a tendency also to underestimate and to neglect chemical considerations. On the whole, his views on treatment could be matched in most essentials by those of many psychiatrists in the States; his interest in the use of sleep treatment and insulin treatment contrasts with our current practices, though I myself would like to see a much wider extension of the use of both these treatments.

Professor Popov spent considerable time describing the different varieties of sleep treatment, making a sharp distinction between sleep treatment and prolonged narcosis, emphasizing the danger of the latter. "While the patient sleeps the doctor cannot sleep well." In the 1930's prolonged narcosis with Cloetta's mixture was very widely used but proved to be dangerous and fatalities were too common. For that reason prolonged sleep with smaller doses of sedative was substituted. Hypnotically induced sleep, based on different kinds of rhythmic stimulation, is also used, but seems not to be so effective in schizophrenia. Prolonged sleep gives excellent results in certain neuroses and in neurasthenia, where the characteristic weakness of internal inhibition is strengthened by the sleep. Sleep treatment is also helpful in obsessive and compulsive states. Sixty to eighty per cent. of the psychasthenic obsessives respond well, though relapses are common. Transient obsessive states occurring in otherwise normal people respond extremely well, and 9 out of 10 cases remain permanently cured. The treatment can also be used for obsessive states occurring as an incident in other psychoses. Sleep treatment also gives excellent results in reactive depressions, but results are not so good in endogenous depressions.

He discussed the theory and practice of Giliarovskii's electrosleep treatment and declared that all of the sleep treatment modalities, since they differ in their mechanisms and therapeutic effect, must be used with judgment and skill. "It's not the fiddle but the fiddler that makes the music," he said.

In recent years, said Popov, there has been increasing criticism of electroshock treatment. Giliarovskii wanted to eliminate it entirely, but Popov thought it had value as a last resort, especially in chronic resistant cases of depression or schizophrenia. It should be contraindicated in neuroses. The small haemorrhages it is known to produce, the memory difficulties, the delay in establishment of conditioned reflexes after treatment, all indicated that the treatment has certain undesirable consequences.

Professor Popov was well acquainted with the newer drugs, but thought some of them, like Marsalid and Tofranil, needed more careful physiological analysis. In schizophrenia he preferred insulin to the newer drugs and suspected that their vogue in America and Switzerland was influenced by economic and commercial considerations. He felt that the newer drugs tended to be more symptomatic than basic in their action. He thought chlorpromazine could often best be used after insulin or sleep treatment, which often obviated the need for prolonged medication. Of psychosurgery he said, "It does nothing that cannot be accomplished by other methods."

He discussed their system of rational psychotherapy with me, as well as their use of hypnosis and suggestion, agreed that psychotherapy had an important place in psychiatry, and conceded that "We have too few books and articles on the subject of psychotherapy". But, he went on to say, not every human problem should be dealt with psychotherapeutically. "If a woman is not true to her husband that is a misfortune, but not a disease . . . Read Makarenko [the famous Soviet educator]. Those children he described were not psychopathic but just poorly trained. You should speak of education, and not of treatment."

Profesor Popov then conducted us through the empty hospital, demonstrated the sound-proof room in which the sleep treatment is sometimes administered, and showed us the small ward where, with dim lights and low voices, patients undergoing sleep treatment are shielded from extraneous stimulation. Later, when I asked to take a snapshot of him, he suggested that he stand before the statue of Korsakov in the courtyard, grabbing our arms while someone photographed us, in a sincere demonstration of friendly feeling.

A CHILDREN'S HOSPITAL

On 18 July we visited the Municipal Hospital in Moscow for Sick Children, Hospital No. 1, and were again hospitably received by the Director, Professor Prokhorovitch. He was a kindly man with a slow and deliberate manner, who kept his eyes almost completely closed while talking. We were later told that this was a residuum of an encephalitis he once had. The discussions were conducted mostly with the aid of an assisting woman physician who spoke French. We were told that this hospital serves the entire city of Moscow and serves as a teaching and training institution. Though there are two other paediatric polyclinics in the city, this apparently is the most important paediatric institution and is a model for other hospitals in the outlying areas. Eighteen per cent. of all hospital admissions for children in the entire Soviet Union are said to take place here.

The hospital and its affiliated suburban sanatorium are divided into 20

sub-departments or pavilions, to serve special needs such as nutritional diseases, infectious diseases, rheumatic diseases, etc.; unfortunately the chief of the psychiatric service was away on vacation. There was some preliminary discussion of the relationship of neurology to psychiatry, and a young paediatric neurologist asked us about the current use of the Salk and Sabin vaccines in the United States. We were told that about 50 cases of polio are admitted each year to this hospital and that a separate pavilion is kept for these cases. We visited several of the pavilions where the buildings, as usual, were not new nor up to the polished, finished standards of the better American hospitals. The wards were nevertheless extremely bright, pleasant and spacious, and practically all of the older children had their beds moved out into the open air gardens which surround the buildings, or were out of bed busying themselves with toys or simple games outdoors. We were impressed by the big ratio of staff to the children. Women physicians seemed plentiful, and nurses were everywhere at hand, and no child lacked individual attention. I was told that even children who are febrile are kept outdoors in good summer weather, and there is a general belief in the importance of fresh air. The younger children in other pavilions, up to the age of six months, were more often than not found with their mothers at their bedside. Arrangements are made for mothers whose homes are distant to actually live in the hospital while their child is there. We saw other elaborate isolation and quarantine arrangements. The quarantine arrangements are made even in the case of normal healthy children who have been exposed to some infectious illness. These children are kept in large, light rooms opening on the garden. Their mothers were frequently found with them. Food was served to them through a special arrangement of double glass doors, so that no direct contact is made with the child or mother. We saw plentiful supplies of toys and equipment for the children, and we heard constantly of the great importance of having the young infants nursed by their own mothers. We were told that in general 90 per cent. of the children are so nursed. In those few cases where this is not possible, actual mother's milk is provided. We commented on the warmth of the atmosphere, and Professor Prokhorovitch made no bones about saying explicitly that the first requisite for suitable hospital arrangements and good paediatric care is that one must love children. On leaving, we were asked to make some entries in their guest book, and we wrote some friendly words, noting that the book also contained some friendly comments by Milton Senn, who was there some time ago, and that he was especially impressed by the emphasis on direct maternal care. We also saw an entry by the Bakwins, who had also been there.

I was interested in Professor Prokhorovitch's observations on their attitude toward normal but weak children. Whenever children are encountered who have no specific disease but who seem to be in poor condition, they are given special attention and encouragement, and regimens are provided to build them up, without relation to any specific disease.

On the afternoon of 20 July, the day we left Moscow, we met again with Dr. Dimitri Benedictov at the Health Ministry, together with Dr. Serebriakova, the assistant to Dr. Babaian, Chief of the Psychiatric Section, who was away in Cambodia. We asked a number of questions on the organization of psychiatric care, but Dr. Serebriakova, through considerations of caution I believe, in the absence of her chief, asked me to leave copies of my questions and said she would mail the information to me (P.S. It never came.)

The role of the psychiatric section of the Health Ministry was described

to us as mainly administrative, though it contributes, in close co-operation with the scientific specialists, to the making of psychiatric policies. The present tendency and practice in the U.S.S.R. is to separate the professions of neurology and psychiatry. The psychiatric specialist is required to have two years of general medical training after medical school graduation, followed by three years of special training. If he pursues a research career three additional years of scientific training are required for the attainment of professorial rank, which in the U.S.S.R. signifies a senior research worker as well as a teacher. When I commented that Soviet psychiatry seems relatively uninterested in mild or borderline disorders, I was told that on the contrary, because of their interest in prophylaxis the mild conditions have always interested them, and that their psychiatric hospitals have special in- and out-patient departments for the neuroses.

We spent the remainder of the time discussing the general question of improving contacts between the psychiatrists of our respective countries. Dr. Benedictov had a number of complaints about the formal difficulties his Ministry was encountering while I, for my part, also made a few complaints about the complexity and awkwardness of communication when somebody like myself tried to arrange a trip with a sincere wish to study their facilities. Dr. Benedictov emphasized the necessity for preserving the formalities of inter-governmental arrangements, in view of the fact that a treaty for scientific exchange has been signed between the countries, and said in a convincing manner it would be difficult and undesirable to circumvent official channels in making arrangements for professional contacts. He gave me considerable useful advice on sources of printed material, and in general the contact proved to be a useful and friendly one. I was impressed by the clipped British pronunciation of one of the assistants, a Mr. Brook, who spoke so impeccable an English that I could have sworn he was British himself, though he assured me he had never visited either America or England. If he hadn't been wearing that brightly patterned sport shirt I said I would have taken him for an Englishman, and he laughingly told me that the shirt happened to be of English manufacture.

LENINGRAD

BEKHTEREV NEUROPSYCHIATRIC INSTITUTE

Arrangements to visit this institute were made by prior correspondence with Professor Miasishchev, who promptly returned from his vacation residence to meet us at his Institute soon after our arrival in Leningrad. Professor Miasishchev proved to be an older man of dignified and quiet bearing, who showed us every attention and consideration. He asked whether we could spend two days at the Institute, but unfortunately we did not have time enough for this. Professor Miasishchev invited half a dozen of the key people on his staff to join with us in a preliminary conference before we toured the Institute. Here, as elsewhere, we were promptly briefed on the historical development of the institution and specifically on its relationship to Bekhterev. The curator of the small but well-developed Bekhterev Museum conducted us through it, laying particular emphasis on the breadth and humanity of Bekhterev's interests, showing us with special pride the contemporary account of Bekhterev's espousal of a Jewish victim of unjust charges in a Russian equivalent of the Dreyfus case, an advocacy of an unpopular cause which brought prompt recrimination to Bekhterev.

Professor Miasishchev expounded his general views on psychiatry as follows:

"Physiology is the basis of our psychiatry, but it cannot be its only basis because it is not sufficiently developed; we must also depend on empirical clinical observations. We must also reckon with the greater complexity of human material compared with Pavlov's experimental animals. We have reason to believe, for example that when we implicate the secondary signal system of man, we will find it necessary to recognize more than the classical four types described by Pavlov. The thinking process in man is very varied: mathematical thinking, constructive thinking, artistic thinking must all be quite different things. We do not want to overlook the physiological basis, but we are obliged to depend a great deal on psychology in our clinical thinking. Before the Revolution our psychiatry was mostly oriented in the direction of philosophic idealism; after the Revolution it was mixed, with some tendency to become mechanistic. We now have the task to bridge the gap between personality study and its physiological basis."

In addition to Professor Miasishchev, the Director of the Institute, there is an administrative director who carries all the routine administrative burdens with the help of an administrative staff. The three other main divisions of the Institute are a clinical or hospital section, a polyclinic or dispensary, and a research or laboratory section. The clinical section has 400 beds and 40 physicians, and is divided into separate departments for male and female adult patients and for children, with separate sections for cerebro-vascular disease, and a section for milder border-line cases or neuroses. In addition, there are three neurological sections, one for epilepsy, one for cerebro-vascular neurological disease, and one neurosurgical section. The hospital deals mainly with acute case material, generally keeps patients for two or three months, does its own follow-up work in the out-patient department, and transfers chronic cases to a chronic psychiatric hospital on the outskirts of the city.

The research section had separate laboratories for anatomy, pathological anatomy, electromicroscopy (we saw two electron microscopes there) biochemistry, bacteriology, pathophysiology, electrophysiology, and psychology. There is also a separate laboratory for the neurophysiology of nervous activity. The Institute has several facilities for animal research. The research section is staffed by 40 scientific workers and 40 technical assistants.

The out-patient department has a separate staff of six physicians, but the hospital staff also assumes assignments for out-patient work (though Professor Miasishchev said the assignment is not popular with the doctors). The out-patient facility does a good deal of consultative work for other medical referral sources, does clinical research, and is used for post-graduate teaching. In most cases the actual follow-up work is done in the local district clinics nearer the patient's home.

Staff physicians are also expected to do a certain amount of popular educational work and will visit factories to give lectures on preventive aspects of psychiatry, on alcoholism, etc. In response to my question, Professor Miasishchev said these assignments were also not very popular with the doctors, and added with a smile, "Our physicians like best of all to work on the wards with our in-patient cases".

Professor Miasishchev said, in response to a question, that he regarded schizophrenia as a clinical disease entity, but recognized that it is difficult to differentiate it from certain other conditions which produce a similar clinical picture. He regarded schizophrenia as an "autotoxic degenerative process"

but added that other Soviet psychiatrists believe it may represent an infectious or post-infectious condition. He felt that the genetic factors were not being adequately studied in the U.S.S.R. at the present time. He did not believe that there was one specific treatment for schizophrenia; one must try various methods. In a typical acute case of catatonic excitement without specific aetiological factors in a young man, for example, treatment might begin with 300 mg. per day of chlorpromazine (or with reserpine). Chlorpromazine dosage is kept at more moderate levels in the U.S.S.R. than in the U.S.A. and seldom exceeds 500 to 600 mg. per day. Professor Miasishchev said that insulin treatment is being used somewhat less often lately. Deep coma is induced for about 30 minutes, and the total treatment period lasts about four hours. Coma is terminated with intravenous glucose. Tube feedings are avoided because of the danger of pneumonia. If the patient does not arouse at once after intravenous glucose, he is given a little sodium amytal. There are no fatalities from insulin treatment. Sleep treatment is also used, generally in modified form, with 13 to 14 hours of sleep a day for about 10 days. Sleep is induced with a barbiturate (sodium amytal, Medinal) sometimes combined with chlorpromazine. Suggestion is also used to reduce dependency on drugs. Electro-sleep is used in milder cases. In insulin resistant cases sulphamide and carbutinide are used (2-3 g. per day), as described in the French, German and Italian literature. Electroshock treatment is used in the treatment of depressions and involutional psychoses, as well as in combination with insulin or with chlorpromazine. The chlorpromazine is given in a single dose at the same time the electro-shock treatment is administered; with this method of combined treatment the complication of vascular collapse does not occur.

Professor Miasishchev felt that sleep treatment had been over-stressed in recent years in the Soviet Union. He believes that Pavlov was misunderstood in this regard. Though Pavlov recognized its importance, Soviet psychiatry exaggerated its claims. Furthermore, said Professor Miasishchev, drug-induced sleep is not the equivalent of natural sleep—and the induction of natural sleep presents very difficult problems. At any rate, sleep treatment has been used less often lately. The mechanism of electro-sleep was obscure. Professor Miasishchev thought it improbable that it operated by direct action on the brain, and was inclined to emphasize the factor of a rhythmic sensory stimulus to the skin. He also felt the surrounding atmosphere and suggestive influences played a role.

Professor Miasishchev told me there were then 4,600 psychiatrists in the U.S.S.R. The number of hospitalized psychiatric cases had declined in recent years. Dr. Zenevich, a member of his staff, told us that recent studies in Leningrad which he had undertaken revealed that there were 1.1 active cases of schizophrenia per 1,000 population. Dr. Zenevich said that careful registration is maintained of all cases either in the hospitals or in local dispensaries, where the cases are followed up for at least five years before they are closed, so that the reliability of the statistic cannot be questioned. A few weeks later in Georgia, 2,000 miles away, a similar statistic was given to me by Professor Zurabashvili of 1 to 1.5 per 1,000 in Tiflis. This can be compared with the figure cited by Lemkau (*Mental Hygiene in Public Health*, 2nd ed., page 143) of 2.9 per 1,000.

In our tour through the Institute, we were especially impressed by the arrangements for work activities for psychiatric patients, including those in follow-up care. We saw three large work sections, fitted out for real factory production, one of them for the spinning of yarn, with bobbins attended by

active workers, a second for the weaving of Jersey cloth, and the third equipped for the manufacture of fountain pens, two samples of which were given to my wife and me (and have been in use since). We were told that 20 per cent. of the patients working in these factory units were feeble-minded. All of them are paid for their work, 200 roubles a month is a minimum, and earnings may be as high as 1,000 roubles a month. Patients who for any reason are not receiving a pension (a woman who had never worked, for example) are provided with a basic 250 roubles a month, while they are ill in the hospital, and may earn several hundred roubles in addition, by working in the shop. As long as a patient is in the hospital he may retain only 30 per cent. of his work pay, 70 per cent. going back to the hospital for the expansion of work facilities. As an out-patient, he gets full pay. When he is well enough to do normal work he transfers to a regular factory. We noted that each worker had a production norm, based on his ability to work, which was posted on the bulletin board. The patients appeared to work happily and eagerly, and we were favourably impressed by this work programme.

Professor Miasishchev was good enough to telephone the Institute for Experimental Medicine to arrange some appointments for me next day, 25 July, 1959. This gave me an opportunity to again see the Director, Professor Biriukov, whom I had previously met several years ago (together with the late Professor Bykov) at the International Physiological Congress in Montreal. I was again received most cordially. One of the staff engineers, D. Menitsky, a handsome intelligent young man with half an ear shot off, served as interpreter. I was told that each of the some dozen sub-divisions of the Institute had its own engineer and technical assistant to help in the development of special instrumentation and that the Institute has its own instrument factory, where 70 workers are employed. I was fortunate to find Professor Kupalov at the Institute that morning, since he had come in from his vacation for a special conference the day before. He was a charming, elderly person of mild and rather subdued manner, who spoke English well, and is generally regarded as the most distinguished living pupil of Pavlov. He demonstrated to me a German shepherd dog with bilateral fistules of the lower jaw which permitted unilateral stimulation of the tongue for conditioning experiments. Professor Kupalov explained that they were thus able to produce a conditioned unilateral salivary response by touching the exposed portion of the posterior region of the tongue with acid and that they observed a persistence of this unilateral salivation for long periods after the unilateral conditioning ceased. Furthermore, a general tendency to increased salivation after all types of stimulation was noted in such dogs, so that this type of unilateral stimulation was apparently associated with an unusual persistence, inertness and radiation of excitatory tendencies. In another example of unilateral conditioning, Professor Kupalov demonstrated a pathologically abnormal persistence of flexion of the front paw for several years, initially in response to a mild shock, but later in response to simple binding of the front paw.

In another series of experiments, visual rhythmic stimuli were applied at different rates to each eye simultaneously, 5 per second to the right eye, and 7 per second to the left, over a period of several weeks. Spike waves were observed to develop on the EEG over both the visual and motor cortex, associated with clonic epileptic motor manifestations. These changes develop at first in direct association to this complex stimulation, but later would develop in response to all kinds of stimuli as a generalized undifferentiated response pattern.

In discussion of this work Professor Kupalov said it would be premature to relate these experiments to human clinical problems: "There are still too many big gaps between physiology and psychology." Professor Kupalov agreed with Professor Miasishchev that Pavlov's four basic types should not be uncritically applied to human beings. "We have trouble enough understanding the behaviour of dogs—with man it is unfortunately even more difficult." Nobody in the U.S.S.R., he added, has achieved a satisfactory statement of the application of Pavlovian principles to human pathology and psychology.

Professor Kupalov told me he was working on a general textbook on Pavlovian physiology, which he hoped time and strength would permit him to finish. When I spoke of the general quantity and quality of the output of the research institutes he said somewhat sadly, "We have been through so much and so much time has been wasted. So much more could have been accomplished if conditions had permitted."

Professor Kupalov showed me around a little, and had me sit in a booth to observe some conditioning experiments with a dog involving spatial orientation. The procedure involved the shifting focus of a sensory stimulus—a metronome beat in a movable box, which the dog had to scratch with the paw in order to release a food pellet elsewhere in the room. By shifting the box to various positions on the floor and finally hanging it on the wall, the dog's ability to discriminate a stimulus in a changing context could be studied. I was able to take a few snapshots of the procedure. Professor Kupalov told me that Pavlov worked in this Institute for a long period and that its name was only changed to the Institute of Experimental Medicine some years ago, as one of the consequences of the Orbeli-Bykov differences. He led me to Pavlov's former office, which is preserved unchanged, and unlocked it to show me in, saying with a mild smile that he still feels overcome with emotion whenever he enters the room. He allowed me to take his picture in front of Pavlov's desk and I snapped another picture outdoors of Professor Kupalov, before the famous statue of the dog in the courtyard. I felt fortunate that I had the opportunity to meet with him.

Professor Biriukov, upon my return to his office, went to considerable trouble to arrange for a quick visit to the Pavlov Institute at Koltushi, since this was already the afternoon of Saturday, and we were scheduled to leave Leningrad on Monday. He made a number of phone calls, rounded up a car and chauffeur, and I was driven forthwith some 30 or 40 miles outside the city to Koltushi, passing en route through several small old villages of the sort few American tourists see.

Koltushi is a rather extensive area, where a good deal of the animal work in conditioning is done, while the Leningrad section of the Pavlov Institute is more oriented to problems of medical interest and human physiology. The grounds looked neglected, by American standards, and the older buildings seemed drab, but a large new laboratory was being erected, and was actually the only new institutional construction that we saw in the Soviet Union. Though most of the important scientific workers were away on vacation, we were met by Professor V. K. Federov, the brother of the well-known psychiatrist, who very kindly showed me about and demonstrated some of his work to me. Professor Federov's special area of interest was the study of physiological types, and he was currently conducting special studies to see if certain neurophysiological types in the white rat stood in any relationship to susceptibility to malignancy. Professor Federov also agreed that the problem of types is unsettled, even for animals. Even when certain tendencies or con-

stellations are encountered in certain animals, we cannot always say to what extent they are genetically determined and to what extent due to post-natal causes. In his animal work Professor Federov said he found that influences during the first three months proved to be especially important. In his current work he used both small and large rats of the Wistar strain and said he found significant statistical differences in relationship to cancer development between fast learning and slow learning rats. He stated that in one series of experiments his results were negative, but in two other experimental series, positive correlations were found and that he could confirm these correlations in rabbits and in bats as well. He added that somewhat similar work had been done by Bagg in New York back in the 1920's.

We briefly visited Pavlov's old office and study, now preserved intact, commanding a broad view of the grounds through large surrounding windows; I then thanked my hosts and returned to Leningrad.

On Monday morning, 27 July, I called upon Professor Soloviev, Director of the Leningrad Pavlov Institute, and spent part of the day visiting the laboratories under the guidance of Dr. Lanii. I was told that the main areas of interest of the Institute at the present time represented a continuation of Bykov's work on cortico-visceral relations in both man and animals. Work was also proceeding on the problem of experimental neurosis along classical Pavlovian lines, and studies were also being conducted on problems of the secondary signalling system. In response to my questions, I was told that hypertension was regarded as basically a nervous disease: the endocrine involvements were regarded as secondary. When I asked about their view of the role of the nervous system in tumour development, I was told "The question is not so simple; we are studying it further".

The combined Pavlov Institute—in Koltushi and in Leningrad—had a total of 28 separate laboratories. There were a total of 700 scientific workers in the Institute, 220 of whom were on the level of Professor, Candidate, or Scientific Worker (which is the rank just below Candidate). The rest were qualified and specially trained technical workers. The budget of the Pavlov Institute currently amounts to 12,000,000 roubles a year. We visited the Electrophysiological Laboratory (Director Dr. Jelloff), where Dr. Adamovich explained some of the current work on the problem of ulcerative colitis. It was believed that ulcerative colitis reflected a pathological imbalance between sympathetic and parasympathetic innervation, with vagotonia predominating. They believed the condition was a result of life experiences and not due basically to constitutional factors. I was told that Professor Kurtzin (he was away on vacation, though I had met him a year before in New York with Professor Bykov), had produced both peptic ulcers and ulcerative colitis by inducing classical neuroses.

Dr. Adamovich was currently engaged in studying the electrical activity of afferent nerves (splanchnic plexus and pelvic nerve) in response to changes in the condition of visceral organs. An experimental urinary cystitis was induced by coli infection, for example, and the electrical changes were then recorded. The instrumentation and techniques were sensitive enough to record changes when a visceral organ was full or empty, when it was exposed to mechanical or other types of stimulation, when different types of food were ingested, etc. We spent considerable time with Professor Balakshina who was working in Professor Kurtzin's laboratory on the relationship between gastric secretion and experimental neurosis in dogs. She told me that the secretion is increased after a neurosis is induced, especially in the small stomach. An

interesting research conducted by Professor Balakshina demonstrated that the production of visceral conflicts—analogueous to external conflicting stimuli—could also produce a classical neurosis in dogs. Professor Balakshina provided me with some published material describing her work and also told me that Dr. Carson, a physiologist from the University of Kansas, had spent considerable time there last year.

KIEV

INSTITUTE OF PHYSIOLOGY AND HIGHER NERVOUS ACTIVITY

This Institute was organized in 1944 by the late Professor Protopopov, a pupil of both Pavlov and Bekhterev. At the present time it has a staff of 300, of whom 100 were described as senior level. At the Institute I had an opportunity to join in a group discussion with Drs. A. Z. Kolchinskaya, S. D. Rasin, and R. C. Zlotin. Dr. Rasin told me that Protopopov and his associates had cultivated a special interest in the problem of schizophrenia for the past 20 years. They have also done a good deal of work on the problem of sleep treatment. Various methods of sleep treatment were employed, including both prolonged and interrupted sleep, induced by sodium amytal, Medinal and other barbiturates. Electrically induced sleep was also used, but I was told that a naturally induced or conditioned sleep was always preferable. Dr. Kolchinskaya told me that for the past eight years special interest was being given to the hypoxic theory of schizophrenia and methods of treatment had been developed involving acclimatization to low oxygen tensions, both in low pressure chambers and at high altitudes. In a series of 30 predominantly chronic cases, I was told that some of the results were "very encouraging". Before I left I was shown a motion picture film depicting the changes in behaviour in some of these chronic schizophrenic patients after a month at 4,000 metres. There was no doubt that a number of them had improved as a result of the experience, but it was difficult to determine exactly how much of the improvements could be directly attributed to the low oxygen tension. A control group treated similarly at sea level showed no comparable improvement. Dr. Rasin told me that they felt the benefits of electro-shock treatment could also be ascribed to the compensatory stimulation of oxygen uptake that followed the shock treatments. In general, they were reluctant to use electro-shock treatment, since they found that even as few as three to five treatments could produce harmful changes in patients. I was told that insulin coma treatment is still very highly regarded in the management of schizophrenia. One of their staff doctors, Dr. Kamarsorinko, has for some years taken a special interest in insulin treatment, did a number of studies of cerebral metabolism, and visited America several times.

Dr. Kolchinskaya described some studies on the toxic effects of protein foods in dogs. Dogs with an Eck fistula would remain normal so long as they were kept on a meat-free diet, but would develop a schizophrenic-like syndrome when meat was added to the diet: the development of the syndrome was associated with a diminished cerebral metabolism. I was also told that even normal sleep is associated with a reduced cerebral metabolism. When I queried this, I was shown what looked like an authoritative statement to that effect in Harris's *Mode of Action of Anaesthetics* published in England in 1951. I was told that in Kiev most psychiatrists regard schizophrenia as a specific disease entity, but that opinion on this subject is sharply divided elsewhere in the U.S.S.R.

Another worker, Biriukovich, has found that manic depressive psychosis is associated with abnormalities in carbohydrate metabolism, and that a tendency toward a diabetic type of glucose tolerance is found. If routine studies of glucose tolerance are made during a period of remission, it is found that these abnormalities can be detected before the actual onset of a psychotic period. Manic depressive psychosis is treated with small doses of insulin, an alkalizing diet to combat acidosis, sedatives such as chlorpromazine, and a special Russian preparation called Lipokayin, which promotes the conversion of sugar to glycogen and prevents fat deposition. I also heard here for the first time of the "Triad of Protopopov" found in manic depressive psychosis: tachycardia, mydriasis and constipation.

Marsilid was regarded as a very effective drug. Chlorpromazine dosage is kept moderate, by our standards, with a usual maximum dosage of 500 mg. per day.

In response to a question, I was told that the Bogomolets antireticulocytotoxic serum was now used only as an auxiliary treatment, though used fairly often, especially to prepare patients for other more active forms of treatment. It was found to increase sensitivity to insulin, and in general to increase the reactivity of the patient. The Bogomolets serum was still being widely used in the treatment of osteomalacia, for example, to promote callus formation, as well as in other medical conditions.

An interesting person we met at the Institute was a handsome and serious woman, Professor H. B. Lauer, the author of a book on problems of hypoxia in disease, who showed us through her laboratory. She was well acquainted with the work of American authors, especially Dr. Harold Himwich, and gave a copy of her book, expressing the hope that Dr. Himwich would get to see it. She also showed us a new heart-lung apparatus that was being used in her studies.

The film we were shown gave an impressive account of striking remissions in chronic catatonic cases ill for three years or more, after a month's exposure to mountain life at an altitude of 4,000 metres. A similar group of patients, given a similar vacation experience in a lovely scenic spot at sea level, failed to respond. Schizophrenic patients, we were told, have a remarkable tolerance to low oxygen pressures. All of this work was initiated under Professor Protopopov and is now being continued by Academician Serotinin.

A HOSPITAL TOUR IN KIEV

Through the co-operation of our Intourist Office, I was able to meet with Professor Piotr Danielovitch Leschenko, an epidemiologist and recent Ukrainian delegate to the United Nations, who was Acting Minister of Health for the Ukraine. Though he did not use a word of English, he received me with the greatest cordiality, and we spent 20 minutes maintaining a disjointed conversation in Russian, which earned me the dubious compliment of being told "You know a great many Russian words", until an interpreter came to our rescue. We continued our conference after being joined by Konstantin Mikhailovich Pavlienka, his non-medical administrative assistant, and Dr. Raissa Vasilieva Medianik, the paediatrician in charge of the child care programmes of the Ministry. Professor Leschenko asked me what I wished to see and immediately made provision for me to see everything I desired, asking Dr. Medianik to assist in the arrangements. He spoke of two recent visits from American delegations, one of biochemists, one I believe of endocrinologists,

and obviously welcomed these contacts and attentions. He wanted to send me back to my hotel in his limousine, offered it to me for use next day, and telegraphed ahead to Kharkov to Professor Kovalenko, Chief Psychiatrist in the Ukraine, to arrange my reception there.

Next day, 31 July, Dr. Kirilova, a pediatrician from the Health Ministry, called upon us in the morning, as agreed, and we spent the day with her, accompanied by an interpreter, visiting various facilities.

The first of these was the Pediatrics Department of the Polyclinic of the Shevchenko District, one of nine regional polyclinics in Kiev. We met with the woman director, Dr. Eugenia C. Kavolovskaia, who explained some of their procedures and policies to us. Preventive health work is actually begun before the birth of the child during the second half of the mother's pregnancy, when the mother begins to get advice on child care while her maternity status is under surveillance. After the seventh month of pregnancy the mother gets leave from her work with full pay. After the delivery of the child in the obstetrical service, the pediatrician from the clinic visits the infant several times before mother and child are discharged, "to get acquainted". After discharge the infant is seen three times a month, either at home or in the clinic, depending on the child's condition, though clinical visits are generally preferred. After three months, examinations are continued at monthly intervals. From the age of one to three years, there is an examination every three months, and after the age of three, there is an annual examination, if the child is healthy. In the event of illness or of special medical problems, the services are of course increased.

The Polyclinic serves a population of mostly healthy babies, but will also take care of milder disorders suitable for out-patient service, and will sometimes call in consultative help. For more serious illnesses, the child is hospitalized. Kiev, which has a population of 1,100,000, has 22 similar dispensaries in the city, and 20 children's hospitals. Each clinic doctor and nurse together serve a specific geographic area and will meet their cases either at the clinic or through home visits. Children continue to attend this pediatric clinic as long as they attend the 10 year school, which means until they reach the age of 16 or 18. Thereafter, they attend the adult clinics.

This particular clinic services a population of 16,000 children, and is staffed by 53 physicians and 113 nurses. There are also five dentists. In response to my question, I was told that there are two neuropsychiatrists on the staff, one neuropsychiatric nurse and a consulting *Dozent*, who is at the clinic once a week. Actually, most of the work of the neuropsychiatrist is neurological, and there appears to be a relatively little psychiatric activity. Psychiatric problems, we were told, consist mainly of neuroses, such as autonomic dysfunctions. I was told that mental retardation is "very rare" and that in the past four years only one case of schizophrenia was encountered. One case of mongolism is found among 500 children and tends to occur among the older mothers. Mongoloid children are kept in separate groups in the nursery schools and in kindergarten, and later attend special schools. They usually live in these nurseries, but may be at home for week-ends; later, in kindergarten, they may live either at home or at school. The director knew of only one case of phenylketonuria that had been discovered at her clinic. She was evidently embarrassed to admit, in response to my questions, that she did not know of the existence of any special dietary treatment; "I forgot", she said and then quickly jotted down the information which I gave her.

Prematurity is defined, as we define it, as a birth weight under 2,500

grammes. A rate of two per cent. prematurity is encountered among the children served at this clinic, and a rate of 4·7 per cent. of prematurity is found in the city as a whole. The stillbirth and neonatal death rate (i.e., death during the first seven days after birth) is 0·8 per cent. for the whole city in 1958. The overall death rate from all causes, including stillbirth, for the first year, is 2·5 per cent. Seven per cent. of all prematures are stillborn, or die in the first year.

In response to another question, I was told that children who present problems of delayed or defective speech are usually referred to the speech therapists for help, after certain special examinations—neurological, etc.—are given, as the case requires.

We were much interested in visiting the Scientific Research Institute for Maternal and Child Care. This is a special service for premature infants attached to a large obstetrical service which we also visited. We were very much impressed by the complete quiet, decorum, composure and relaxation of the mothers during childbirth, though several deliveries were in progress. The only noise on the obstetrical service came from the newborn infants, though we were told that there were 72 obstetrical cases at that time. The obstetrical-gynaecological unit had 304 children's beds and 100 adult beds (60 obstetrical and 40 gynaecological beds). The director said the service happened to be overcrowded at that time with obstetrical cases. When I remarked on the unusual quiet of the delivery room, the director said, "It is always so". This particular service handles about 2,000 births a year. The special bassinette section for prematures is supposed to serve the entire city, but only ten of the bassinettes were occupied.

Later in the day we visited the Regional Hospital in Darnitza, a newly constructed hospital in a pine grove on the outskirts of the city. It was a two-storey construction with long wings built along simple functional lines, with spacious halls, extremely quiet atmosphere, and spotlessly clean. The main entrance opened directly into the visitors' waiting room, which was furnished with a number of large upholstered chairs and settees covered with light cotton slip-covers. The walls were hung with six or seven large oil paintings, done in adequately good realistic style, depicting the medical profession in various honourable tasks—a woman physician bending over a sick child with warmth and devotion, another physician (female) trudging through a snow-storm to visit a patient, and a handsome portrait of a young female nurse or doctor of obviously high character. The Director of the institution, V. F. Anishchenko, explained to us that these pictures were intended to instil hope and confidence in the minds of families who visited the hospital. He showed us the screen of a closed circuit TV placed in the room, with a loud speaker overhead, which allowed families to see and communicate with patients who could not be visited on the wards because of quarantine or for other reasons.

The hospital was both an acute and chronic hospital, serving the adjacent industrial area of Kiev. In addition, it had out-patient departments for both adults and children, as well as several auxiliary clinics placed in the local factories. The new construction supplanted an earlier 1,000 bed hospital that was destroyed during the war. At present it had 300 beds, but was to be enlarged to double that capacity. It had a simple children's unit, a separate 30 bed hospital unit for tuberculosis cases, as well as a separate 150 bed so-called "therapeutic" hospital for internal diseases. The hospital had a total staff of 102 physicians and served a population of 30,000 people in its region. The region was sub-divided into seven sections, each of which had two "therapists" (i.e., internists) and one paediatrician who took care of the patients in their

district, both in the out-patient facilities and in their homes. The hospital had five neuropsychiatrists on the staff, but their work was almost entirely in the field of neurology. There appeared to be little attention paid to the milder neuroses, to the psychiatric aspects of psychosomatic disease, or to psychotherapy. If a more serious mental disorder such as a psychosis was encountered, a psychiatrist would be called in as consultant from the central psychiatric clinic in the city.

We were impressed not only by the remarkable quiet and cleanliness of the hospital, but by the apparent comfort and relaxation of the patients. The wards opening on to the corridor each had no more than four to six beds. There appeared to be an ample supply of nurses as well as doctors at hand, with no physicians of youthful house-staff age in evidence. There were a number of ingenious devices that reflected a solicitous regard for the patients. The physiotherapy room, for example, had ear-phones hanging near each physiotherapeutic device connected to invisible tape recorders, which allowed patients to hear scientific explanations of the apparatus and treatment procedures while they were being treated. In the wards a push-button beside each bed allowed the patient to signal the nurse, by setting off a quiet recording which the nurse would hear at her desk which kept saying, "You are needed in Room —" until the nurse flicked her switch and appeared in the room.

We saw one darkened room where patients with peptic ulcers were being treated by sleep treatment. We were told that the sleep treatment is also used for the management of earlier stages of hypertension, for the treatment of post-concussion syndromes, and for causalgia. The dimly lit room had a few twirling radiometers which exercised a hypnotic effect, as well as an illuminated tank of goldfish, for the same reason. Another room with a sign over the entrance, saying "Microclimate" proved to be an ingenious imitation of a porch, furnished with wicker furniture, illuminated with ultraviolet light, with a false window at one end opening on to a painted mountainside. The room was equipped with various contraptions to produce ozone, etc., intended to duplicate both the physical and psychological atmosphere of a resort area. I asked the director whether the treatment worked, and he said very seriously, "It is too new to know the answer". He added that it was mainly intended to promote convalescence. When I suggested that its effect might be merely psychological, he was inclined to agree. On the upper floor we inspected the operating rooms, which seemed modern in their equipment. The director was particularly glad to show us the special sinks where the surgeons washed up, which were provided with automatic electronic devices that turned the faucets on as soon as the hands were brought close to them. He laughed with evident satisfaction when I said I had not yet seen these in America. We noted that the sterilizing equipment was manufactured in Rumania. The dental equipment was really streamlined and looked equal to the best equipment I had seen in New York City, but was of Czechoslovakian manufacture.

When—out of personal interest—I asked how they treated slipped discs or nucleus pulposus herniations, I was told that they were treated conservatively, "with good success".

KHARKOV

NEUROPSYCHIATRIC INSTITUTE

This is a central institute for neuropsychiatry for the Ukranian Republic, and its woman director, Professor Kovalenka, is the chief neuropsychiatrist

for the Republic. The Institute was founded in 1921 and in 1939 was made a constituent part of the Academy of Medical Sciences. It was so badly damaged during the war that it was completely restored thereafter. Like all Soviet institutes of this type, it is almost purely a research institute, and has nothing directly to do with teaching. It is the Medical Institutes which are charged with the responsibility for medical instruction. Since much of the research work depends on patient material, the Institute relies upon the related Kharkov Neuropsychiatric Hospital, under the direction of Dr. Stepenko, which is an administratively distinct unit, but found on the same grounds. The hospital has 1,615 beds, of which 1,315 are psychiatric and 300 neurological, with an allotment of 30 beds in each of these departments for children. This is the only psychiatric hospital for the entire urban area of Kharkov. It functions mainly as an acute hospital, where patients are either successfully treated over a period of months, or transferred to chronic provincial hospitals in the outlying areas. These provincial hospitals also service acute case material from their own local areas. The provincial hospitals also transfer to this hospital their more difficult or complicated cases. When we were there the facilities of the hospital were being taxed and almost all of the beds were occupied; new construction would soon provide 300 additional beds. But, we were told, "Even this will not be sufficient", so that many patients will have to be treated in local dispensaries. Though alcoholism is regarded as a common and serious problem, most alcoholics are handled on an out-patient basis, though a number were admitted to the hospital, and a new separate institution for alcoholics was to be opened in a few months.

We were told that the three basic units in the provision of psychiatric services were: (a) the local dispensaries, (b) the acute hospitals, and (c) the chronic colonies. The local dispensaries are regarded as the most important because of their strategic relationship to prophylaxis. The number of dispensaries has been increased in the post-war period and more of them have been provided with *statsionar* beds for local, temporary bed care. In Kharkov the local dispensaries do not need *statsionar* beds, since the presence of a local hospital makes them superfluous. In the Ukraine there is one psychiatric bed provided for every 1,000 persons, on the average, or about 40,000 psychiatric beds for the Ukrainian Republic. We were told, however, that a number of milder cases come under the jurisdiction of another agency of government, which controls the sanatoria and rest homes. The details of local psychiatric management are left with the local authorities. Once funds are budgeted for a certain area, the allocation of these funds becomes a local responsibility.

I was particularly interested in the problem of alcoholism, and questioned the staff closely about it. Though they could not provide me with reliable statistics, it was felt that alcoholism had probably increased in the post-war period. It was exclusively a problem of the vodka drinker, and the sale and consumption of vodka is being actively discouraged. It was said to be the only product the price of which had gone up consistently over the years, and a recent law limited the sale of vodka to 100 g. per person in any public eating place. Though the emphasis is on out-patient care of the alcoholic, hospitalization is resorted to if the patient is acutely excited or has developed an alcoholic psychosis. Chronic alcoholics may be remanded to chronic colonies where they will remain for at least six or seven months under a work programme.

To round out the picture, I asked specifically, "How would a 30-year-old heavy drinker be handled if he got into recurrent difficulties?" I was told that

he would only be punished if he actually created some public disturbance. Ordinarily he would be admitted to some O.P.D. facility or to a hospital, or to a so-called sobering-up station. Here he would be bathed, given a stimulating shower, some sedatives if necessary, and sent home next day after paying for the board and service. His factory director would be informed, and he would be required to report back daily for the next few days. He would also probably be contacted by his youth organization, trade union, or by his local physician, and he might have to meet with a visiting delegation of fellow workers or Komsomol associates in his own home.

When I asked about the general incidence of psychiatric disease, I was told the following: In 10 major psychiatric hospitals in the Ukraine, a comparison was made between the pre-war and post-war periods. In the post-war period, there appeared to be a slight increase in the number of schizophrenic patients, and 52 per cent. of all hospitalized psychiatric patients were now so diagnosed. Only 21 per cent. of the schizophrenics, however, were first admissions, 22 per cent. were second admissions and most of the others third admissions. The number of first admissions of schizophrenic patients had actually decreased slightly. The main problem is that of the relapsed and chronic cases. The average age of all the schizophrenic cases was getting higher, though the age of first admissions remained unchanged. General paresis had increased sixfold in the post-war period, but it still comprised only 1.1 per cent. of the hospitalized population. In pre-revolutionary days general paresis comprised 38 per cent. of the hospitalized population. General paresis now runs a more benign course than it formerly did. There has also been a general decrease in acute toxic psychoses, and in post-partum psychoses (which were now said to be very infrequent). No malarial psychoses are encountered now. Though the exact incidence of mental deficiency was not known to my informants, they told me that cases of oligophrenia had greatly decreased.

The most common and important treatment for schizophrenia was Sakel's hypoglycaemic insulin treatment. Insulin is also used in smaller doses in combination with sulphur—as a fever-producing agent—for chronic cases, and this combination was highly regarded. Chlorpromazine was used in the treatment of schizophrenia, especially when anxiety or other affective components seemed prominent. Electro-shock treatment was regarded as harmful to the brain and it was now used infrequently, though it was sometimes resorted to in cases with persistent depression and anxiety. Both prolonged (about ten days) and interrupted sleep are used in the treatment of schizophrenia, as well as electro-sleep in some cases. For the induction of sleep various sedative mixtures are used, consisting of combinations of chlorpromazine and other sedatives, alcohol, glucose, etc. Details will be found in a paper by Dr. Richter of the Institute staff.

In the management of neurosis, a variety of procedures may be used, including modified sleep treatments, chlorpromazine, insulin (sometimes in combination), electro-sleep, narcotic suggestion, rational psychotherapy and hypnotherapy.

Professor Kovalenko herself appeared to be primarily involved in neurological work, with a special interest in the problem of rheumatic diseases of the central nervous system. She and her staff conducted us through her large institution, where a great variety of research activities were under way, many with the typical Pavlovian preoccupations. One of the staff spoke disparagingly of the hypoxic treatment I had heard about in Kiev, and I gathered there was the normal amount of professional rivalry among their psychiatrists.

A very friendly party, with lavish refreshments, was held for all of us, and my wife was again presented with a large bouquet, to the accompaniment of friendly exchanges. Professor Kovalenko urged us to stay on for the Ukrainian Psychiatric Conference which was to take place soon, but we had to move on to Tiflis.

TIFLIS

Professor Zurabashvili was good enough to inform me that he could meet with me at the Institute of Psychiatry. There we met with the Professor and with some of his staff members, including Docent Nina Georevna Vishapelie, the child psychiatrist specialist on his staff. Professor Zurabashvili was a completely charming personality with Georgian temperament and vivacity, mellowed by his advanced years. He was short of stature, ruddy of complexion, with a large white moustache, sparkling eyes, constant smile, warm responsiveness and great modesty—altogether an attractive individual. As in the past, my wife and I were invited to sit at a conference table, where we could ask as many questions as we liked and write our notes. Professor Zurabashvili told us, the following:

“Georgian psychiatry is a part of Soviet psychiatry and operates according to the same general principles. We have been especially interested in the problem of schizophrenia, which is the main problem of psychiatry. We are often asked by foreign psychiatrists whether or not we regard schizophrenia as a disease entity. Schneider, the German psychiatrist, has written extensively on this problem; he regards schizophrenia as a large group of diseases, though among this group a single distinctive disease must be recognized. Part of our difficulties are due to our neglect of long term studies of the course of this disorder. I regard it as a single disease, but feel that we need to define it strictly. I have reached the conclusion that it is not an infectious disease, nor an inflammatory process, but is basically a degenerative process. Though no specific pathological anatomy has so far been disclosed, I believe, as a morphologist, that a slow degeneration at the synapses takes place, which may be functional at first and only later becomes organic.”

We were told that 35 per cent. of the mental illness encountered is schizophrenic. Professor Zurabashvili estimated the incidence of schizophrenia in this locality as 1 to $1\frac{1}{2}$ cases per 1,000 in the population. But he explained that he does not have the precise figures available to him, since this is a research institute and the exact records are kept in the clinical department. He added that his estimated figure would include recovered cases (which would make this correspond approximately to the figure given me in Leningrad). All types of clinical pictures of schizophrenia would be included under the term. The main methods of treatment for schizophrenia were insulin, sleep therapy, chlorpromazine and sulphur. Professor Zurabashvili thought that insulin combined with chlorpromazine gave the best results. In addition, rational psychotherapy, group therapy and work therapy are used. The psychotherapeutic sessions are conducted in the local dispensaries after the acute phase of the illness is over. These sessions might last 20 to 30 minutes, but vary in individual cases. In conclusion, Professor Zurabashvili agreed that schizophrenia is likely to prove to be basically a chemical disease, with secondary morphological changes.

In response to a comment of mine, Professor Zurabashvili denied that

Soviet psychiatry neglects minor disorders, though he admitted that articles on this subject are scarce, but he added that these minor disorders have in general decreased under the new social conditions, and agreed they were often dealt with by non-psychiatric means. "But," he added, "our interest in this area inevitably emerges from our general interest in prophylaxis."

To help concretize the picture, I asked what would happen in the case of a 30-year-old worker whose work began to slump, who suffered from insomnia and irritability, fought constantly with his wife, etc.? I was told that such an individual would either himself go to the factory dispensary to seek help and advice or would be induced to go by friends and relatives. There he would at first be seen by the regular physician, who would certainly call in a psychiatric consultant, who would then probably diagnose a neurosis or neurasthenic state, and treat the patient accordingly. Treatment of this type of problem would be conducted typically at the out-patient level, and management of a case of this sort would also be considered part of their prophylactic interest. Professor Zurabashvili said that he would probably classify such a case as neurasthenic. "Suppose," I said, "the real cause was marital incompatibility?" Everybody laughed. Professor Zurabashvili said, "In that case, this would be regarded as a misfortune, not a disease. They would probably go to the courts to settle this difficulty."

My wife and I then spent considerable time asking questions in the area of child psychiatry, particularly of Docent Vishapeli. "How does it happen," I asked her, "that the kindergarten director in Kiev, who handles 250 children, told us that in 40 years she had never called in a psychiatrist?" Dr. Vishapeli replied, "That is quite typical. One would rarely need a psychiatrist in a kindergarten setting. Even if a psychiatric problem should arise, it would be dealt with in the district dispensary. There we are constantly alert to problems of prophylaxis. If the examining paediatrician at the dispensary suspects a psychiatric disorder a psychiatrist is called in for consultation. Otherwise there is no specific preventive psychiatric examination."

"In Tiflis the psychiatrists are separated from the neurologists in medical practice. All children have a general medical examination at least twice a year. At this psychiatric institute all psychiatric consultations are referred to us, and we see, as a rule, about 25 to 30 such cases a week. We now very seldom see psychoses in children. Although we have 15 beds at the psychiatric hospital connected with the Institute for the in-patient care of children, only a few are usually occupied, and we have only 30 admissions of children a year. (The population of Tiflis is about 650,000.) Moreover, these children generally stay only a few weeks or months. In the case of a chronic psychiatric disability in a child, the child would be transferred to a residential setting at the chronic hospital or resort at Suranai, about 75 miles from Tiflis. At Suranai there are 30 or 40 children with chronic psychiatric disabilities, recruited from the whole state of Georgia, which has a population of about 4,000,000. This institution is also used for convalescent care, for which an additional 30 beds are provided."

When I asked what kinds of cases would be found among the 30-odd consultations requested each week, I was told that the two most common reasons for referral were (1) psychiatric disorders associated with epilepsy and (2) suspected cases of mental deficiency. In addition, various reactive states, including reactive states in mental defectives, were referred. Toxic infectious psychiatric disorders and schizophrenia were very rarely encountered. Of these 30 referrals, a number are not seen again after the initial consultation, and others may be seen for follow-up services.

When I asked how many feeble-minded children were in Tiflis, I was told that there are two schools for the feeble-minded in Tiflis, each of them with 200 pupils, or 400 in all, "and these are quite enough". In all of the past year, three cases of mongolism were encountered.

In addition to the special schools for mental defectives, there are special educational facilities for the blind, and for the deaf and dumb. Speech therapy is made available to all children who need it. Severely disabled cerebral palsied children live in special sanatoria, the mildly disabled cerebral palsied children attend regular schools. In general, cerebral palsy is regarded as a rarity and only a few such cases are encountered each year. For children with severe orthopaedic handicaps but without psychiatric disabilities, there are two sanatoria in Georgia, each of which houses 250 children.

When I asked what is the later fate of a feeble-minded child who finishes school, I was told that they go to work in regular factories, collective farms or state farms, where special and appropriate tasks can be assigned to them.

In response to another inquiry, Professor Zurabashvili and Docent Vishapelie declared that neither of them had ever seen a case of school phobia.—"And I have practised for 35 years", added Professor Zurabashvili.

In conclusion, Professor Zurabashvili said, "I have always insisted that psychiatry is an integral branch of medicine, but that does not mean that we can neglect psychology. We pay a lot of attention to psychology here, and I teach my students that they cannot make a diagnosis without giving due attention to clinical psychological factors. We base our work on the physiological teachings of Pavlov, we study electroencephalography, skin galvanic reflexes, the pathophysiology of the receptor system, especially of the eye, we study biochemistry, the vegetative nervous system, endocrinology (I correspond with Manfred Bleuler), serology and morphology (following Bekhterev's teachings), and finally all of these interests converge in our practical clinical work. That represents the general range and direction of our interests."

By this time our friendly hosts began to show signs of weariness and I apologized for questioning them so hard and keeping them so long, and began to prepare to go. Professor Zurabashvili again with self-effacing modesty said that we were quite welcome to stay a little longer, if we had the time, and opened the doorway to an adjoining room, where a table was bedecked as for a banquet, and we sat down and enjoyed a most delicious repast of Georgian tea and food, combined with a delightful rose liqueur served to us in little silver cups.

At the end, Professor Zurabashvili presented me with his book on schizophrenia, and reminded me how interested he would be to hear further from me

SUKHUMI

We called at the branch of the Institute of Experimental Pathology and Therapy of the Academy of Medical Sciences in Sukhumi (in the autonomous republic of Abkhazaiia), a celebrated monkey colony in this subtropical Black Sea resort town, where considerable experimental work is done. We were received hospitably by Dr. (actually Candidate) B. A. Lapin, a young experimental pathologist who was director of this branch of the Institute. He told us it was originally founded about 30 years ago as a monkey nursery to supply experimental animals needed for research, mainly for the Institute of Endocrinology in Moscow. It was later integrated into the Union Institute

for Experimental Medicine in Leningrad, and many of Pavlov's students worked in Sukhumi for a while when Pavlov was still alive. At first these research workers would spend six or twelve months at the colony and then return to their own institute, but later the Institute acquired its own permanent scientific staff. Two years ago it finally became an independent institute under the Academy of Medical Sciences of the U.S.S.R. and was designated as the Institute of Experimental Pathology and Therapy. Its earlier research programme involved the study of the physiology of higher nervous activity, but it later moved into the area of disorders of the nervous system, experimental neuroses, etc., using Pavlov's methods. But it was soon realized that the classical Pavlovian methods used with dogs could not be applied to monkeys. The older classical techniques could indeed be used to induce mild disorders in the monkey, but the typical conflict situation induced by positive and negative conditioned reflexes had relatively little disturbing effect on the *Macaca mulatta* and baboons. Beginning in 1949 the scientific workers at the Institute began to use other methods which proved more successful in developing conflict situations, and which were dependent on unconditioned reflexes, along lines similar to the experimental approach of Masserman, though the Russian workers did not know at that time of Masserman's work. They based this research work on Pavlov's finding that deeply fixed reflexes involving both cortex and sub-cortex could best be found in the unconditioned reflex. The food reflexes apparently did not affect the monkeys deeply enough, and reflexes had to be used involving sexual activity or the unconditioned defensive reflexes.

"We tried for a while to induce conflicts by using positive food stimulation in conflict with an inhibitory electro-shock, but this always led to a rather complicated defence reaction rather than a simple neurosis, and the behavioural pattern became so complex that the positive-negative stimulation conflict became only one item in the complexity." If, however, a male and female monkey were kept in the same cage for a period and the female was then removed, this could induce very serious disturbances in the male. In response to a comment of mine, Dr. Lapin said laughingly, "I don't think it is so hard with us humans." Neuroses were also induced in the leading male figure—the king—in the polygamous monkey colonies, when the normal order of feeding was disturbed, since the king is always the first to eat, while the others await their turn. If conditions are created whereby the females feed first, the male becomes seriously neurotic (though no disturbance develops in the female).

When I remonstrated that this order of feeding must be *learned* behaviour, rather than unconditioned, Dr. Lapin said, "I believe these tendencies are inborn and not the product of experience, and amount to a rule of nature."

Monkeys in whom these neurotic disturbances are induced develop a number of somatic disorders over a period of time, such as hypertension, coronary insufficiency and eczema. Fatal coronary occlusions sometimes occur in these monkeys, and myocardial infarcts were twice observed at autopsy. In the series of 25 neurotic monkeys that have thus far come to autopsy, two cases of apopleptic insults were also encountered.

The most consistent and common way of inducing neurotic symptoms in the monkey is to disrupt his daily routine. Conversely, the neurotic monkey develops a disruption in his normal physiological rhythm. Detailed experimental studies have been conducted at the Institute on the effect of interference with normal routine of higher nervous activity.

When I asked about their findings in regard to therapy, Dr. Lapin said that treatment is very difficult, especially after a full-blown neurosis has developed. In its earlier stages it can be cured by the cessation of the disturbing factors, and a return to normal routines. No attempts have been made to handle these disturbances by other psychiatric means, such as sleep treatment or drug therapy. Dr. Lapin said he believed that the characteristic daily routine of the monkey is based on inborn tendencies, and therefore again involved unconditioned mechanisms. Feeding activities, for example were typically confined to daylight hours; if monkeys were consistently fed at night but not by day, neurosis were induced. Susceptibility to neuroses varied with the age of the monkey. It was more difficult to induce neurosis in younger monkeys, but once induced it proved to be more persistent. The offspring of neurotic monkeys were now being studied, to see whether any neurotic tendencies were inherited, but no definitive answers have yet been found.

I was interested to hear that there was no psychologist on the staff, though occasionally in the past some psychological work had been done. Dr. Lapin regretted this deficiency in staffing, and explained that their main interest had been in the area of medical problems. He thought however that the large monkey colony could lend itself very easily to psychological work as well. No general psychological studies of instincts, nor of sex behaviour, had ever been undertaken there.

At the present time the colony had about 1,000 monkeys, 250 of which were kept for breeding purposes. About 150 monkeys are born there each year, and an additional 500 are imported yearly. There were 55 scientific workers at the Institute of graduate level, including three physicians, and there were 150 assistant technicians. Laboratory helpers and others increased the total on the staff to about 300. The annual operating budget was 6,000,000 roubles a year.

All animals are autopsied at death. The fatal illnesses of captured animals are quite different from those raised in captivity. In the former, infectious illnesses prevail, in the latter we encounter diseases similar to those of humans, such as arteriosclerosis, hypertension, coronary insufficiency, and cholelithiasis. These diseases are especially common among those raised in cages, compared with those raised in fenced-in ranges. Dr. Lapin conceded that diet may be a factor, though he thought the physical constraint was probably most important.

Considerable work was being done on the effect of ionizing radiation on higher nervous activity, and a special conference on this topic was to be held in a few months.

In the oncological section, sarcomata were being induced in monkeys by using a combination of subcutaneous silver pellet implants with simultaneous administration of oestrogens and progesterone. Neither factor alone was sufficient to induce tumour growth.

Our guide made some telephone inquiries for us, and reported that in the city of Sukhumi, with a population of 64,000, there were only 30 children in special classes for mental defectives. This, we noted, corresponded closely to the ratio reported to us in Tiflis.

YALTA

SANATORIUM UKRAINE (FOR CLIMATOTHERAPY)

The attractive young Armenian physician in charge was Dr. Maya Gregorian, who conducted us through the institution. Patients are admitted

to this institution upon the recommendation of a physician, usually the industrial dispensary at the individual's place of work. It is apparently not too difficult to get such a certificate, since the health sanatoria are supposed to function as convalescent centres and not as hospitals. Sanatoria of this type were formerly administered by the various trade unions, but have, since 1956, come under the jurisdiction of the Health Ministry. Many of the sanatoria specialize in particular types of convalescent care, such as arthritic conditions, respiratory disorders, convalescence from tuberculosis, orthopaedic disabilities, etc. This particular sanatorium accepted workers who suffered from, or had recovered from, respiratory disorders such as pneumonia, bronchiectasis, asthma, silicosis, etc., except for tubercular cases which were not accepted here. It was staffed by twelve physicians, 30 nurses, and 40 orderlies or practical nurses. At the time we visited, it was filled to capacity of 350 patients, drawn from all over the Soviet Union, "Anybody from Ministers to workers and peasants". A typical stay lasted 24 days, which cost 1,020 roubles, 70 per cent. of which is paid by the individual's trade union or collective farm. A patient usually pays 30 per cent., but even this charge may be waived if the individual has a large family or is otherwise not easily able to pay. Transportation to and from the sanatorium is usually paid for by the worker, but here too the union may sometimes pay for transportation. Different unions are allowed different quotas for admissions to sanatoria; unions involving hazardous work, such as mining, have higher quotas. This particular sanatorium was built by the woodworkers' industry for its own use in 1955, but its administration was taken over by the Health Ministry soon afterwards.

The sanatorium remains open all year. In addition to the cases with respiratory disorders, 200 beds in this sanatorium are allotted for neuropsychiatric cases, 50 or 60 per cent. of which are mild neurasthenic or neurotic cases, the remainder being more strictly neurological cases, such as radiculitis or neuritides. Five or six per cent. of the cases have a diagnosis of hysteria, two or three per cent. psychasthenia, and a considerable group were diagnosed as neurasthenics (all "according to the classification of Davidenkov and Lichterman"). Most of the patients came here without their spouses, though 30 couples were there at the time and I was told that many more couples come together in the winter. Strictly speaking, the spouse is supposed to need a medical certificate too, but policy in this matter is fairly liberal. I was told that many such couples go to a rest home rather than a sanatorium. No children are allowed at this sanatorium. The building, though new, was not architecturally modern, by our standards. It was amply proportioned, with large walls and rooms, spacious views overlooking the cliffs and sea, with a lot of superfluous gingerbread woodwork, Corinthian plaster columns and plaster scrolls. The rooms we saw opened on to verandas, where the patients were encouraged to sleep. There was the usual emphasis on fresh air and outdoors; even during the mild winters outdoor sleep was encouraged unless the weather was bad. We visited the huge enclosed swimming pool, saw a big pier, at the foot of the hill, jutting out into the water, all covered with beds where patients slept. There was a big physiotherapy department; a great many different types of bathing were used, with mud brought in from a choice locality nearby for the apparently popular mud bathing. Patients were given five rather lavish meals a day, averaging 4,500 to 5,000 calories, unless they needed a low calorie reducing diet. Other special diets were available. I was told that four of the staff physicians were neuropsychiatrists, but their work appeared to be mainly neurological, since we were told that only a "small number of patients" get

psychotherapeutic sessions once or twice a week for an hour or so. Two or three patients get hypnotherapy; various modalities of sleep therapy, including electro-sleep, were used. These psychiatric therapies were described as quite adequate by the director. More elaborate psychiatric treatments, I was told, were given at a special psychiatric sanatorium in Simferopol, or at similar psychiatric sanatoria elsewhere in the Soviet Union.

ODESSA

I had little opportunity to see much in Odessa of a psychiatric nature since the Neuropsychiatric Institute was closed, though I visited the associated neuropsychiatric dispensary, where I met with the amiable chief physician, Dr. Kravchenko and with Docent Benisovitch. Dr. Kravchenko told me that most of the work in his clinic was neurological, and only a small percentage psychiatric. He agreed that psychology and psychotherapy were relatively neglected in Soviet psychiatry, and told me that he had read with interest in Russian translation the book on neuroses by the American, Dr. Joseph Furst. He told me that in this region, with a population of about 2,000,000, only 120 to 140 active schizophrenic cases were known; a ratio of less than one case per 10,000 population.

In spite of the efforts of Dr. Kravchenko the Public Health Director for the district, whom we both visited, refused to grant me permission to visit a chronic psychiatric hospital, out in the country near Odessa. He said it was too far, time was too short, I could meet their chief psychiatrist here in the city, etc., but I suspect he viewed me with distrust, since I had no credentials and he did not know who I was. This was the only refusal of this type I encountered in the U.S.S.R., and it probably would have been avoided if I had been better prepared. I did, however, meet with Dr. Ernst Hammerschlag, the New York psychoanalyst who had just previously visited a large chronic psychiatric facility outside of Leningrad, which housed a population of about 1,000 patients. He described the buildings there as old, partly wooden, and rather crowded, but very clean and with an ample number of physicians, a large number of nurses, orderlies and other help around. Both older and younger patients seemed indiscriminately mixed. Chlorpromazine treatment appeared to be extensively used, and there were special facilities for insulin shock treatment. Dr. Hammerschlag had also heard that a unique method of treatment by prolonged starvation was sometimes used. He reported with interest that the head physician, whom they interviewed, declared that neuroses were not common in the U.S.S.R. because basic living conditions were so good. If irrational discontents arise, he was quoted as saying, these can either be corrected through rational discussion, or else might have some psychotic basis.

SUMMARY AND CONCLUSIONS

These travel sketches cannot give a complete or even typical picture of Soviet psychiatry, for the time was too short and the contacts too few for that purpose. These glimpses of scenes and people do, however, contribute to a picture and satisfied the curiosities my earlier study of Russian psychiatry had aroused. How did this reality compare with my earlier picture? On the whole the theory and character of service corresponded to what I tried to depict in my book ten years ago. But there were differences. In spite of the broad and thorough coverage of psychiatric and other health services there was a certain lack of finish and efficiency to the services I could observe. Buildings

were often dilapidated and old, treatment wards sometimes seemed crowded, homey and unorganized. Hospital tempo was slow, with manpower lavish and wasted. In spite of theory and research, the treatment methods, like ours, were too often largely empirical. Pavlovian formulae were repeated with stereotyped monotony, and other approaches seemed secondary in comparison. In Leningrad some forward elements were interested in medical psychology and psychodynamics, but in the dispensaries and general hospitals of Kiev or Odessa, minor neuroses and psychosomatic mechanisms seemed to be neglected, and psychotherapy was practically non-existent. Russian psychiatrists know much more about us than we know about them, but in spite of their obvious interest they have only spotty and second-hand information about psychiatric development in the U.S.A. and in the West.

Soviet psychiatry is not all of one piece. I found interesting, at times amusing, and basically healthy evidence of differences in point of view as I moved from place to place. Professor A calls Professor B a "so-called scientist" and thinks Professor C is a great showman. So-and-so thinks electro-narcosis is specifically electrophysiological, but—says my informant—it probably works only by producing rhythmic sensations on the skin. Dr. X thinks highly of sleep treatment but Dr. Y says it is over-rated. Pavlov was a great man, but he was wrong in some important matters, says another. In Kiev a newly developed treatment is praised, but in Kharkov they tell me it is a failure.

In spite of what seemed like a strict hierarchical organization there was scope to manoeuvre, and both differences and discontents found expression. Research scientists appear to have comfortable salaries, are anchored and well supported in their research and committed to long careers. There was more separation of research, teaching and clinical service than we usually see in our country, and I had the impression that more research should be done in the clinical settings, and that more clinicians should be doing research. Experimental design tended to be looser than we like, and public health statistics, or large population studies, too infrequent. Much of the research could be described as attempts at detailed description and analysis of phenomena. I was troubled to see distinguished scientists, heads of institutions, bothered with the necessity of writing their own correspondence or making appointments and handling minor chores because, with some exceptions, they have no secretaries. Psychiatric research is too uniformly Pavlovian. Even granting its basic importance it is not always necessary nor desirable to build up knowledge from a base of conditioning studies. One would welcome more approaches from other directions; population and epidemiological studies, more large-scale and systematic therapeutic undertakings, more follow-up and clinical studies, or EEG, endocrine, pathological, anatomical, genetic, chemical, and other approaches.

But there were strongly positive impressions too. The hospital atmosphere always reflected kindness, humanity and an orientation to the needs of patients. The patients—children and adults alike—looked secure in the hospital setting and I did not see any of the forlorn neglected creatures so often found in our own public hospitals. For all its monotony, Soviet psychiatrists had a point of view, probably a correct one, and it permeated their thinking. Their neurophysiological research was on a technically high level, scientifically sophisticated, and likely sooner or later to produce big results. Many of their most talented youths were given splendid opportunities for life-time research careers. Their science, moreover, is advancing very rapidly in pace with their

general economic advance. In comparison with their recent past their present accomplishments should give them every reason to feel proud. I think the finish and refinements will come soon, but already Comrade Ivanov of Moscow fares quite well as a psychiatric case, even by our standards.

Certainly there is everything to be gained from further contact and exchange: the inevitable rivalry that is developing between us is all to the good, for this is a contest where there are no losers.

MANAGEMENT OF SCHIZOPHRENIA IN SARAWAK MENTAL HOSPITAL, 1959

By

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IN view of the drastic changes which have occurred in psychiatric treatment during the past five years and in the attitude towards it we have assessed our results, in order to compare them with those recently published by other writers. (Parnell (3)).

THE SETTING

The Government Mental Hospital is situated 7 miles from Kuching, the capital of Sarawak.

The country is of the size of Great Britain and the hospital is the only mental hospital for a population of approximately 700,000 plus 70,000 of the Sultanate of Brunei. In addition a certain number of cases are referred from the neighbouring British North Borneo.

It provides accommodation for 350 patients. This includes a ward for "Broadmoor" patients with accommodation for about 40 and a private ward for 10 patients.

The country lies just north of the equator and the population consists of: 220,000 Chinese (213); 210,000 Sea Dayak (38); 170,000 Malay (62); 30,000 Land Dayak (7); 70,000 Melano, Kayan, Kenyah, Kelabit, Murut, Punan, Bisaya, Indian, Eurasian, European (18).

Most of the Chinese are first and second generation immigrants. The figures in brackets shown above are the shares these groups take in the hospital admissions which leaves much room for thought and further work, some of it to be reported. There were 338 admissions in 1959. Out of these 202 (57 per cent.) can be placed into the diagnostic group of the schizophrenias, 54 of them being re-admissions. This group of illnesses appears to claim a similar percentage of the in-patient population in other psychiatric units.

METHODS OF TREATMENT

The stress is on psychotherapy (or mental nursing), that is, making friends with the patient, pulling him back into the world which we all share or preventing him from withdrawing into one of his own. This point, which is obvious, one might say, is made since purely physical methods would in our opinion never give the results to be presented here. The most thrilling experience we all have in our daily work is that psychotherapy works, something which we try to impress on our only half-believing nurses daily.

Regular full psychiatric interviews with every patient were carried out including every single chronic patient whatever the duration of his stay in the hospital and however extensive arrangements had to be made, for instance, having the appropriate interpreter or sets of interpreters from the staff at hand: for example Kayan into Malay, Malay into English,

or in the case of Chinese, Foochow into Hokkien and Hokkien into English. The Alienist-in-charge, who took up his appointment in November, 1958, is accessible all round the clock both to patients and relatives, which is thought essential in this setting with its poor and complicated communications. The astonishing thing is that a good rapport *can* be achieved in this way, with the appropriate psychotherapeutic effect, by patient listening and with personal knowledge of the cultural background of each of the races in Sarawak.

The main emphasis of the physical forms of treatment has been laid on the chlorpromazine and E.C.T. combination (Thassis (4)). Usually we start with chlorpromazine, 100 mg. t.i.d., in cases which show marked increase in psychomotor activity, this is often supplemented by chlorpromazine 50 mg. t.i.d. or even 100 mg. by injection for three or four days plus statim E.C.T. on admission and possibly two or three days thereafter and from then on twice weekly. Dehydration with high pulse rate is carefully watched and adjusted if necessary by tube-feeding under E.C.T. or i.v. saline drip. This problem is rather frequently encountered in view of the time of up to several weeks it may take for a patient to reach us, in view of the enormous size of the catchment area. Establishing personal contact with the patient by all staff as quickly as possible is stressed, that is talking to the patient and establishing an interpersonal relationship, making him take part in the daily evening walks, occupational therapy and patients' social club.

Where possible, use is made of day hospital facilities—this is made a little difficult as a large-scale measure by the distance of 7 miles between the hospital and the town of Kuching. Even so, eleven patients were treated in this way.

One of the difficulties inherent in our setting is the multi-racial, multi-language nature of society when psychotherapy as much as any other form of interpersonal communication has to be done through one or even two interpreters. The other great hindrance is the enormous distances and obstacles which often have to be overcome in order to reach our unit by air, ship, speed- or rowing-boat or road. The same applies, on discharge, when the difficulties are even greater.

RESULTS

Chronicity

Whilst we are at this stage unable to give two-year figures, the following might be indicative of the trends in comparison with other units such as those reported from the Maudsley hospital, especially if the differences in the staffing situation are taken into account.

Out of 100 patients admitted between 1 November, 1958—30 June, 1959, 12.02 per cent. were still in the hospital on 30 December, 1959, that is after an average of 10 months (the corresponding figure for the previous year is 35.8 per cent. when there was no permanent medical officer at the hospital). Of the patients admitted during the first 6 months of 1959, 13.24 per cent. were still in the hospital at the end of the year, that is after an average stay of 9 months. The corresponding average figure for the years 1954-1958 was 37.25 per cent. These results were achieved despite an increase in admissions from a yearly average (for 1954-1958) of 153 to 338 in 1959, that is, an increase of 221 per cent., which is significant at the 95 per cent. level.

Admissions and Discharges

The number of discharges increased (again taking the average of the four previous years in comparison with 1959) by 271 per cent., that is from 126 to 342. ($t=12.79$ which is significant at the 99 per cent. level). This has resulted in an overall reduction of the number of in-patients at one stage by 22 per cent., that is from 328 to 255 patients.

Re-admissions

The number of re-admissions was expected to increase significantly with the accepted policy of discharging patients between phases of the psychosis if they are spaced at intervals of a reasonable length. In spite of this policy of early discharge and closely watching each individual patient personally for remissions and discharging him with out-patient supervision wherever possible, the re-admission rate has only increased from 21 per cent. (1958) to 29 per cent. (1959), which with $D=0.723$ does not reach the 5 per cent. level of significance which would require $D=1.96$.

Length of Stay

We are unable as yet to say whether the average length of stay of schizophrenia patients has been significantly reduced, since the time available for such a survey is only one year. But for those who were admitted during the first six months of 1959 and discharged during the same year, the average length of stay was 75.24 days whilst for the years 1954-1958 it was 90.61 days, i.e. a shortening of length of stay by one-sixth for those discharged within the year, despite the 271 per cent. increase in number of patients admitted in that year. In fact the above figure of length of stay in 1959 does not represent the true picture, which is much more favourable since it does not take into account the often lengthy periods of leave granted prior to final discharge.

DISCUSSION

We are fully aware that the criteria as to what constitutes "social cure" or remission of the psychosis vary from country to country, so does the limit to which acceptance of a patient by his community (in our case often a long-house community) can be pushed and so does the ability of a community to absorb and tolerate the partly mentally disabled. A good proportion of the population of this country lives in long-houses which from the purely psychiatric angle appear an ideal form of community. Our favourable results may be partly influenced by this.

It is regretted that further analysis of our data on the lines both of Parnell and Skottowe (3) and of Brown (2) is not possible. Further work is progressing however in this direction. One's impression is that the type of schizophrenia is as important as regards prognosis as social isolation, i.e. lack of visitors: it appears that the productive forms can be quickly treated and discharged. They may have further relapses and need re-admission: that is hebephrenia, paranoid schizophrenia and the productive phases of catatonic schizophrenia. The unproductive forms appear of worse prognosis, that is simple schizophrenia and unproductive catatonia. This needs verification however. The newer methods of treatment deal effectively with the first group of this dichotomy of schizophrenia but appear so far ineffective in the second, i.e. those patients where lack of drive is the outstanding feature (as also in

the chronic stage). So far our experience with the newer anti-depressant drugs has been disappointing in those patients who need "activation".

In another paper we will report on our results with out-patient treatment of schizophrenia which goes hand in hand with the work at the hospital.

SUMMARY

Results of management of schizophrenic in-patients at the Sarawak Mental Hospital are presented for 1959. Treatment is by psychotherapy (mental nursing) together with the combination of chlorpromazine plus E.C.T. The chronicity-rate after 10 months is 12.02 per cent. and the re-admission rate 29 per cent. The total number of patients in the hospital has been reduced by 22 per cent. despite an increase in the admission rate by 221 per cent. (338) as compared with the four previous years and accordingly the discharges from the hospital have increased by 271 per cent. The hospital caters for a population of three-quarters of a million and has approximately 350 beds. The area it serves is of the size of Great Britain.

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REFERENCES

1. BOROWITZ, A. H., *South African Medical Journal*, 1959, **33**, 836.
2. BROWN, G. W., *British Medical Journal*, 1959, 5162, page 1,300.
3. PARNELL, B. W., *ibid.*, 1959, 5162, page 1,296.
4. THASSIS, J. A., *The Medical Journal of Malaya*, 1959, **14**, 135.

EPILEPSY AND BEHAVIOUR DISORDER IN SCHOOLCHILDREN

By

LESLIE E. KEATING, M.A. (Cantab.)

1. *Do epileptics show behaviour disorders?*

In approaching a survey such as this, one is immediately faced not only by the obvious difficulties in a study of a broad cross-section of the population with many divergencies and categories in the hands of so many different physicians and observers, but also, as Gibbs and Stamps (1958) point out, by the fact that "new information has developed so rapidly in the last few years that no time has been allowed for dead opinions to be given a decent burial".

That many epileptic children show disturbances of behaviour as well as of intelligence seems agreed (W.H.O., 1957), as will be seen from the list of traits alleged in a subsequent section, but opinions vary considerably as to the cause of the phenomena and their actual relationship to epilepsy.

Henderson (1953) found that about 12 per cent. of all epileptic school-children had obvious personality difficulty, and he admits that difficult children in whom behaviour disorders are seen are often sent to special schools for epileptics, which would presumably weight the statistics in surveys which have been done in such schools. Strauss *et al.* (1940) found some evidence amongst children referred to the New York State Psychiatric Institute, and Gibbs and Stamps (1958) state that behaviour disorders, personality problems and psychiatric symptoms are common in certain types of epilepsy. Certainly teachers in special schools for epileptic children would seem to agree that many of these children are also "problem children", but this too may be a result of selection.

It would be thought, if there were a positive correlation of any significance between epilepsy and behaviour disorder, that this would show in crime records or statistics of delinquency. Whilst Healy (1915) found 7 per cent. of "definite" epileptics in 1,000 delinquent cases, Burt (1925) comments that Healy's figures appear remarkably high, and evidences only 2 grand mal cases from 200 delinquents. Scott, in a personal communication to W.H.O. (1957) found only 7 epileptics (2.3 per cent.) amongst 294 consecutive boys referred for psychiatric report at a London Remand Home, and Bridge (1949) remarks that "the contribution of epilepsy to juvenile delinquency is no greater than would be expected in any social class with difficulties in social adaptation". Conrad (1937) has in fact reported increased incidence of criminality in epileptic families, but Alström (1950) disputes his findings.

2. *Is there an epileptic personality?*

The general tendency in the literature is to admit that whilst certain classes of epileptics—e.g. institutionalized epileptics (Wallin, 1949); patients with temporal lobe or thalamic/hypothalamic epilepsy (Gibbs

and Stamps, 1958); and "deteriorated epileptics" (Mayer-Gross *et al.* 1954; Herd, 1930)—show strong evidence of extreme personality disturbance which may reasonably be labelled "typical", nevertheless there is little evidence to show that any general behaviour found in epileptics and superficially "characteristic of epileptics" is in fact due to any "epileptoid personality" (Myers and Brecher, 1941; Bridge, 1934).

This is not to deny the existence of this behaviour. A survey of the descriptive literature follows, and an attempt is made to evaluate the suggested causes and to appraise diagnostic measures and possible methods of treatment.

Zanker (1960) describes similar behaviour as being characteristic not only of epileptic children, but of handicapped children in general. Bridge (1949) finds the list of disorders attributed to 65 epileptic children "differs little from the norms for the general population".

3. *Descriptive of the alleged "Epileptic Personality"*

It is hardly to be wondered that an "epileptic personality" has been postulated, when one finds in the literature numerous papers alleging at various times that epileptics (of various kinds) show in the aggregate the following characteristics:

(1) Amongst the vast number of personality traits given, *irritability*, *peevishness*, *temper* and *aggression* stand out as almost unanimously reported. Together with these we find, from one or more sources, epileptics described as:

(2) Aggressive characteristics: explosive, quarrelsome, domineering, bullying, anti-parental, vindictive, maniacal, brutal, violent—together with: malice, gossip, cruelty, lying and rancour.

(3) Passive anti-social characteristics: morose, sullen, sulky, stubborn, easily-slighted, obstinate, moody and ill-humoured.

(4) Personality traits: short-attention, alcoholic, apathetic, antagonistic, bigoted, confused, circumstantial, "clammy", coarse, contrary, undextrous, deluded, despondent, disliked, discouraged, dissatisfied, egotistical, fussy, fickle, familiar, garrulous, hypochondriacal, hysterical, impetuous, irresponsible, impulsive, inadequate, insecure, of limited interests, lacking feeling, monotonous, poor in memory, changeable in mood, narrow in outlook, perseverative, pedantic, plateau speech, rebellious, retarded, mock-religious, mock-righteous, sexually troubled, shallow, spoiled, sensitive, superior, sub-standard, temperamental, taciturn, troublesome, truant, slow-thinking, unstable, unreliable, unpredictable, undisciplined, unamenable, vain, vulnerable, vicious, wilful and withdrawn (Andrews, 1943; Bridge, 1949; Burt, 1925; Cattell, 1946; Hall, 1947; Herd, 1930; Halstead, 1957; Hill and Watterson, 1942; Kreyenborg, 1928; Mauz, 1939; Minowska, 1937; Mayer-Gross *et al.*, 1954; Pond, 1952; Stubblebine, 1957; Wallin, 1949, and others).

To offset this formidable list of derogatory terms, Hall (1947) comments that "the majority of epileptic children do not show these characteristics . . . over a number of years they remain kindly, thoughtful, considerate and amenable"; Putnam (1945) describes extra-institutional epileptics as being on the whole "outstandingly even-tempered, uncomplaining and devoted, and . . . among them are to be found many unusually stable, intelligent and

delightful personalities"; Bumke (1924) maintains that epileptics are "by nature simple, good-humoured, conscientious though limited folk, and show in fact a personality deviation of a non-psychopathic kind".

It would therefore seem to be the general opinion that epileptics, whilst not invariably, do in many cases possess characteristic personality traits or further exhibit behaviour disorders which are not, however, due to epilepsy *per se*.

To what, then, can this categorization be due?

4. Possible explanations for the "epileptic personality"

(a) Medication

Lennox (1929, 1940) and most other workers have refuted the suggestion that anti-epileptic drugs are in any direct sense responsible for deterioration either of intelligence or behaviour. Stauder (1938) however, found cases in which the behaviour of epileptics improved when the dosage of their drugs was critically adjusted. Gibbs and Stamps (1958) more recently affirm that "continuous psychiatric symptomatology . . . may be exacerbated by drugs that control seizures", and they especially instance phenurone. As will be discussed later, this observation marches with their view that *ad hoc* ictal psychiatric symptoms and continuous inter-ictal manifestations are independent.

Kimball (in a personal communication to Penfield and Erickson, 1941) gave the opinion that "Luminal and other drugs may have a distinctly stultifying effect on the mind, and will accentuate rather than relieve the abnormalities of personality". It would seem pertinent to suggest here that the academic distinction between primary and secondary effects of medication should be modified, if not dropped (Keating, 1960). If a drug, by its depressant effect on neurone activity, interferes with the patient's energy-producing chemical reactions (McIlwaine, 1955) and so renders him incapable of understanding or responding to those standards of conduct which maintain the accepted code of normal behaviour, then that drug obviously has a causal effect in behaviour disorder. Incidentally, Stauder (1938) goes beyond the question of behaviour in epileptics and suggests that Luminal "accentuates the abnormal picture . . . characteristic of the 'genuine' epileptic . . . and further that even normal persons who take this sedative will begin to show the same type of reaction".

(b) Cerebral damage

That structural damage to the brain is likely to have some effects on the personality has been mentioned by Mayer-Gross *et al.* (1945); Bender (1940) describes the "clinging personality" of children with cerebellar lesions; Earl (1936) found a small hyper-kinetic group whose over-activity could be attributed to lesions in the basal ganglia, and the W.H.O. Report (1957) draws attention to the psychomotor sequelae to damage in the anterior-temporal and mid-temporal lobes or in rhinencephalic epilepsy—damage "in the highest levels of presentation of the somatic expression of the emotions and (perhaps) of consciousness".

Whether a reason for this damage should be sought in the aetiology of the fits or whether it is actually caused by the latter themselves (or both) is a matter for discussion.

That cerebral damage is caused by anoxia due to vascular spasm during the fit (Scholz, 1951; Ruf, 1952) and certainly in status epilepticus (W.H.O., 1957) seems established, and evidence from E.C.T. (artificially induced convulsions) endorses this view (Henderson and Gillespie, 1956; Bridge, 1949; Mayer-Gross *et al.*, 1954; Penfield, 1933).

Mayer-Gross *et al.* (1954) specifically suggest that "pathological factors not infrequently enter the picture (of delinquency) particularly as some form of brain damage". They add, however, that "the change produced will depend on the original constitutional make-up as well as on the site of the lesion. We are yet far from a cerebral localization of the psychopathic symptoms".

Hodskins and Yakolev (1930, 1931) who have published case-histories and photographs of deteriorated epileptics, mention that "when mental deterioration does occur, it is often associated with evidence of widespread progressive cerebral atrophy". That deterioration is a phenomenon frequently found in epileptics is confirmed both by experience in special schools for epileptics and by authors such as Hodskins and Yakolev (*supra*). Minkowska (1937) and Mayer-Gross *et al.* (1954) who postulate "in many cases a typical schizophrenic end-result". Herd (1930) says that "the deteriorating epileptic is probably one of the most difficult of difficult children, with the possible exception of the encephalitic", but also points out that "the child who has petit mal only seems almost as liable to mental deterioration as one who has severe attacks of major type . . . partly on the side of intelligence . . . but perhaps more marked on the temperamental side".

(c) *Environmental conditions*

In view of the above evidence it has been suggested that an explanation of this question should be sought at secondhand—in the nature of a reaction to some environmental factor, past or present.

Firstly, of course, there is the actual basic reaction to "being an epileptic", and this may perhaps be included in the more comprehensive term of "being handicapped" (Jones, 1953). (In point of fact, epilepsy in the special school is rarely the only and often the least obtrusive of all the handicaps suffered by a given child—some, for instance, may be at the same time epileptic, spastic, maladjusted, mentally retarded and seriously speech-defective.)

Putnam and Merritt (1941) draw attention to the "manifestly heavy psychological burden" of living under the constant threat of convulsions, a factor also noticed by Bridge (1949), who says: "The most serious handicap to a happy and satisfactory living that most epileptic children have to face is not the seizures but the failure to adapt themselves psychologically to their disease and to its accompanying circumstances." Secondly the "comparative isolation and the seeming unfairness of their situation produces a characteristic anti-social disgruntled attitude" (Gunzburg, 1958). Goldfarb (1943) has compared groups of institutionalized and non-institutionalized children and decides that "it is the lack of individual affection, attention and intellectual stimulation, so often a concomitant of large institutions, which may make for poor mental development" (Clarke and Clarke, 1958), but O'Connor (1956) gives a summary of researches to show that "the mere fact of institutional care itself may not have deleterious effects".

Briefly we may divide the environmental effects into three categories:

- (a) Reaction to institutional conditions and routine;
- (b) Reaction to treatment by staff; and
- (c) Reaction to treatment by, and social contact with contemporaries.

Of these there can be, and are, wide variations in the first two, whilst the third is to a large degree affected by them.

The material aspects of institutional life are very important in meeting troubles before they arise. The standard of comfort and of amenities in the Home may be a very vital factor in determining the ease of settling down of a new entrant, especially one from a good home. Material provision must be made for the child's welfare in the often depersonalized state of the immediate post-ictal period of a major fit. Security, too, calls for routine—fixed enough to stabilize, flexible enough to avoid exacerbation of temperamental disorders. Even apparently unrelated details such as times of meals and intervals between them may influence behaviour in unstable children, since, for example, children become irritable more readily when hungry (Jersild 1957; Gates, 1926; Young, 1937).

But it is in the child's reaction to personalities rather than to material environment that we may seek more revealing evidence.

"Most of the psychological difficulties, adjustment problems and maladjustment exhibited by many epileptics, children and adults, are probably produced less by the ravages of the disease itself . . . than by the derogatory attitudes of parents, siblings, playmates, neighbours and the ill-advised and misdirected treatment or maltreatment to which many epileptics may be subjected by their associates and caretakers because of lack of understanding or prejudice" (Wallin, 1949).

Nor, in passing, is this a situation peculiar to epileptics. Burt (1925) says: "Children, from their position of physical and social inferiority, are peculiarly liable to have their childish whims frustrated. Hour after hour, by the adults around them and by the hard world of fact, their hopes are disappointed, their activities disturbed, their natural wishes defeated or balked. Hence, since childish behaviour lies so largely upon the instinctive plane, this constant thwarting cannot fail to stir up the spirit of strife in those who possess it, and the wrath of the more irascible is inflamed almost daily." If this can be written about the "normal" child, how much more must it apply to the handicapped, and especially the institutionalized child.

There is also the possible factor of deprivation or maltreatment at an earlier age. The W.H.O. Report (1957) states that "clear correlations are found between the severity of the behaviour disorders and environmental factors such as broken homes, inconsistent discipline and neurotic parents" (Pond, 1952; Strotzka, 1954; Bridge, 1949). The same Report considers that "so striking are the associations between severe temporal lobe disorders and disturbed family background that one is tempted to postulate a genetic or familial factor to account for it". Kanner (1948) found the families of two-thirds of his tantrum children were unrestrained in expressing their feelings, inferring this as a causative factor, and Mayer-Gross *et al.* (1954) in considering that "a persistent difficulty or frustration in the life of the child may also be responsible", suggest that in such cases "worthwhile results will only be obtained by a comprehensive treatment of the whole family situation psychologically or socially".

It should not, however, be considered that the effects of early deprivation are necessarily of a permanent nature. Tizard, in Clarke and Clarke (1958) discusses this matter very fully, pointing out that although Harlow (1949), Hebb (1949) and many others have suggested from their experiments that early restriction of environment means a poorer subsequent performance in animals, and although a number of writers (Spitz, 1945; Goldfarb, 1945,

1947; Bowlby, 1951; Bowlby *et al.*, 1956; Lorenz, 1952; Tinbergen, 1951) have put forward a somewhat similar hypothesis apropos of child development, yet others have contested the necessarily permanent nature of the effect and have also questioned the validity of drawing an analogy between animals and children.

Clarke, Clarke and Reiman (1958) have studied backward children whose retardation appears to be partly due to early deprivation and have found them often to have made surprising accelerations in adolescence or early adult life which have enabled them to achieve a performance quite at variance with their apparent potential at the outset, and a well-known protagonist of the maternal deprivation hypothesis (Bowlby, 1951) has recently adopted a somewhat modified version of his own previous views (Bowlby *et al.*, 1956).

(d) *Exacerbation of irritability*

It may be of interest to study the possibility of a lowered ceiling of frustration-tolerance in the epileptic with the consequence of greatly increased irritability.

Masserman (1943) was able to produce rage in cats by electrical stimulation of the hypothalamic region, and found that this response was greatly increased by doses of metrazol or picrotoxin, which act by lowering the epileptic threshold. It may be of therapeutic interest to note his contention that a contrary effect was found with hypnotic drugs.

Mayer-Gross *et al.* (1954) point out that the higher centres in the cortex which normally inhibit emotions of rage may have their function impaired by structural damage, for example by toxins or by physiological changes such as hypoglycaemia or cerebral anoxaemia. They mention also the fact that brain trauma has clinically been found a "very common antecedent to a change of personality towards increased irritability".

Tylor Fox (1950) quotes Fuchs (1947) as turning the problem round and judging the fit to be "a symptom of a deep-seated conflict in which the child has been able to discharge his embittered feelings and emotional strain". If this view be true, it throws a great deal of light on the "volcanic" outbursts so common with epileptic children in which some minor irritant stimulus seems to trigger off a violent temper tantrum directly or through a chain reaction of increasingly explosive events and which have given rise to considerable discussion as to whether these warrant the term "subclinical fits". The progress of these outbursts takes on a psychological rather than a physiological form and bears little relationship outwardly to an actual seizure, though the ictal symptoms of onset and working to a climax, and the post-ictal symptoms of sudden depletion, exhaustion and slow recovery to normal if not euphoric state, are somewhat analogous.

(e) *Exacerbation of normal anxiety states*

One other aspect remains to be considered—the possibility that at least a component of the behaviour disorders seen may be an exacerbation of "normal" anxiety states which are often present to a mild degree in some children and in an exaggerated form in others, especially at adolescence (Burt, 1925).

That these anxiety states do arise in children is well authenticated in the literature (Schwab and Veeder, 1929; Ziehen, 1926; Bridge, 1949 and others), despite the cynical doubts of quite a few members of the teaching

profession. Schwab and Veeder (1929) say: "Sometimes the adolescent, instead of making an escape and then an adjustment through devices well within the normal . . . makes them through the devious pathways of a frankly abnormal state." If the child is escaping from some psychological effect of his epilepsy, then we have an example of the dual psychopathology to which Gibbs and Stamps (1958) refer, and even if one part of this is eliminated by anti-convulsant medicine, the other—the defence reaction—may persist as a behaviour problem.

5. *Diagnosis*

To diagnose the teleological causality behind much of the epileptic child's behaviour disorder is an essential and yet a particularly difficult thing to do Cattell (1946).

The means at our disposal for diagnosing these causes group themselves into:

- (a) Introspective and intuitive comment from the child;
- (b) Inferences which one can draw from the child's comments in the light of psychiatric experience;
- (c) Information from psychological tests;
- (d) Clinical evidence, past or present, of brain damage;
- (e) Evidence from the EEG.

Much could be written about these sources, especially in regard to specialized techniques necessary in order to obtain a full and an accurate impression, but the following brief comments may indicate the field in each case.

(a) *Introspective or intuitive comment from the child*

"Children very rarely complain in words about their health or happiness", says Stafford-Clark (1952), "in fact they tell us that there is something wrong by what they do rather than by what they say, and very often their behaviour is not under their control." It is to discover the inner feelings which the child is unable to put into words that diagnostic techniques must be directed, since as Stafford-Clark continues: "It is neither reasonable, just, nor incidentally of the slightest use, to punish him for disturbances which are symptoms of illness and which he himself may not be able to control at all."

(b) *Inferences which we may draw from the child's comments or behaviour in the light of psychiatric experience*

Although the child may be unable to give much direct information bearing upon his problems, a skilled psychiatrist or an experienced layman may be able to paint quite a lot of detail into the picture after listening to the child's views and opinions. Sometimes the best approach may be by question and answer, sometimes by a technique almost resembling that of the analyst's couch, sometimes by a mixture of insight, cunning and sixth sense! Quite a lot of light, for example, may be thrown on conditions both in the institution and in the child's mind by a quiet, friendly chat with returned absconders instead of punitive action (Fraser, 1951). Absconding is essentially a diagnostic factor (Allen, 1949), and Burt (1925) emphasises that "in every case, and most of all in the most hardened, a full study must be

made" by a team including social, medical and psychological workers. The child must have some reason sufficient to itself for absconding, or alternatively its mind must be in a state which leaves it no control over its actions. In the latter case we should apply therapy rather than blame, and in the former, investigation into the apparent cause for absconding may help considerably in straightening out the personal problems of the child on which are based his behaviour disorders, and incidentally may surprise the enquiring adult. The clinician will obviously not accept the first nor the simplest explanation. An admitted fear of the teacher and the school, for example, might in fact point to an unresolved earlier disturbance of the parent-child relationship Klein (1945). Familial factors have often been found to contribute extensively to truancy. (Stengel, 1943).

(c) Information from psychological tests

The possibility of obtaining diagnostic information from various psychological tests has been mooted by a number of authors. Gann (1945) for example, claimed that backward readers compare with normal and fluent readers in being "emotionally less well-adjusted and less stable . . . insecure and fearful in relation to emotionally challenging situations and socially less adaptable to the group". Jones (1953) gives a comprehensive summary of many psychological tests given to epileptics, and recently Clarke and Clarke (1958) have evaluated the findings of investigations into the social significance of results in personality tests with a performance or verbal bias respectively. They find that "subjects with either no bias at all or a performance bias, have generally a better social prognosis" (Earl, 1940), have "high behaviour efficiency and inherent stability" (Bijou, 1942a, 1942b, 1944; Bijou and McCandless, 1944) and are "likely to get along in the academic work of the institution school" (Abel, 1945), whereas "verbal bias in mental defectives has generally been considered as indicating poor prognosis and has often been found in behaviour problems" (Hamlin, 1938). They point out that yet other investigators were unable to differentiate between adjusted and maladjusted cases on the basis of subtest patterning (Brill, 1936; Sloan and Cutts, 1945a, 1945b).

A good deal of this work has been done with cerebral palsied children (Cruickshank and Bice, 1955) but it would appear strangely enough, that studies of C.P. children do not contribute very considerably to our knowledge of maladjustment (Clarke and Clarke, 1958).

Clarke and Clarke (1958) also find that "the good Kohs performer tends to show some personal stability and social adjustment (Sarason and Potter, 1947; Wile and Davis, 1930; Gunzburg, 1956), whilst poor performance in the Block Design may be due to maladjustment, brain injury, confusion of visual organization, etc. (Goldstein and Scheerer, 1941; Wile and Davis, 1936; Shapiro, 1951a, 1954). It may be that very large and striking discrepancies between the Kohs performance and the efficiency on other tests are indicative of disordered cerebral functioning, whilst a less dramatic lowering of Kohs performance may suggest emotional disturbance (Wile and Davis, 1930; Earl, 1937, 1940)".

Another test which has been reported to illuminate the problem is the Goodenough "Draw-a-man" test (Goodenough, 1926). Hinrichs (1935) considered that the drawings were "affected by factors like maturity, environment and pathological conditions ranging from psychopathy to organic damage", but Popplestone (1954) considers that "the stimulating, intriguing and

challenging hypothesis of these authors (Machover, 1949; Buck, 1948 and others) has so far seldom been supported by evidence of an objective kind". Gunzburg (1955a) seems to have found an explanation in suggesting that the "rule" (*supra*) does not apply to the "subcultural" defectives (the tail-end of the normal frequency distribution) but only to the "pathological" category ("symptomatic" defectives, see Lewis, 1929). It does apply, he maintains, "to defectives whose efficiency is affected by emotional disturbances, to defectives with superimposed psychoses and to those with organic involvement". This opinion would seem relevant to our enquiries, as Gunzburg compared two groups, one of them composed of cases diagnosed as epileptics, neurotics, organics and psychotics.

There are, of course, two aspects of the Goodenough test: on the one hand the straightforward application of the test to determine mental age by the comparison of the child's score with developmental norms (Goodenough, 1926) and on the other the implications of "projective" drawings and the inferences to be drawn from factors other than those originally listed in the Goodenough marking scale (Machover, 1949; Gunzburg, 1952). This is a point made by Brill (1937) who remarks that the Goodenough test as a quick determinant of I.Q. "can only be used in cases where factors like cerebral injuries, psychosis or neurosis can be ruled out". Clarke and Clarke (1958) give a number of other authors who have investigated this test relative to maladjusted children (Springer, 1941; Gunzburg, 1950a, 1955; Earl, 1933 and others).

Symonds (1949) discusses the projections of adolescents in connection with a series of pictures which he had specially prepared, and this study throws up some interesting properties of personality diagnosis which might be of use in the investigation of behaviour problems. Further work on projective techniques has also been done by Frank (1939), Abt and Bellak (1951) and Anderson and Anderson (1951).

(d) *Diagnosis and the Electroencephalogram*

Takerta and Katz (1951) state bluntly that "there is no apparent relation between the EEG and specific types of behaviour. . . . Neither is there any relation between EEG and specific emotional traits . . . as reflected in the Rorschach tests".

Halstead (1957), though finding "no significant correlations with the EEG" in an investigation of school-children, leans somewhat the other way in admitting that he found "trends" towards an association between grossly abnormal EEG and bad behaviour, and Hawkes and Roark (1951), whilst supporting the specific denial of a direct correlation between EEG pattern and behaviour disorder type, nevertheless found that 90 per cent. of these cases had abnormal EEGs—so suggesting actual cerebral disturbance as a basis for the behaviour disorder.

The tendency of recent writers, however, is to commit themselves to a greater or less degree to the view that there *is* correlation of some kind between EEG pattern and behaviour disorder, or that some correlation will emerge when sufficient results are subjected to systematic analysis.

Schwab (1939) showed an association of abnormal EEG patterns typical of petit mal and psychomotor epilepsy with an increased reaction time and periods of dullness. Cobb, Martin and Pampiglione (1952) forecast a "limited return to the concept of EEG-pattern-representation of cerebral disease" as a result of their work on the recognition of typical waveforms in

lipidosis and subacute encephalitis. Williams (1941) goes further in stating that in the absence of a gross lesion an abnormal EEG suggests some constitutional deficiency which may possibly manifest in some form of behaviour disorder. It may be of interest too, that during the war Harty, Gibbs and Gibbs (1945) found that one-half of the recruits rejected for the U.S. Army on account of psychiatric disorders showed EEG abnormalities—nearly twice as many per cent. as for those accepted (Heppenstall, Hill and Slater, 1945).

Hill (in Hill and Parr, 1952) states that the “first report of the EEG in behaviour disorders of children was made by Jasper, Solomon and Bradley (1938). Their finding of an excess of 3–6 c/s rhythm was supported by Secunda and Finley (1942), Solomon, Brown and Deutscher (1944) and Gottlieb, Knott and Ashby (1945). Studies aimed at special problems of delinquency in childhood were made by Brill, Seidemann, Montague and Baker (1942), Brown and Solomon (1942), and Jenkins and Pacella (1943)”.

More recently Kennard *et al.* (1954) reported “significant differences as shown by the frequency analyser between the EEG records of these . . . individuals, which can be separated according to different psychological criteria . . . and a strong correlation between such factors as anxiety, aggression or passivity, and specific EEG types”.

Gibbs and Stamps (1958) confirm this finding and especially that EEGs showing anterior lobe, temporal lobe and psychomotor epilepsy and 14 and 16 c/s frequencies of thalamic and hypothalamic origin correlate with problem behaviour.

A possible explanation of the reason for much of the correlation found is that whilst “in the early days the finding of an excess of slow activity in the EEG of problem children was taken to substantiate the concept of the ‘epileptic psychopath’, it is now realized that most of this slow activity is related to a disorder in maturation rather than to epilepsy” (W.H.O., 1957).

Lindsley in 1939, having made a longitudinal study of 120 epileptic children, doubted that there was any good correlation between EEG pattern and personality, but in 1940 he quoted a higher percentage of beta and theta waves in problem children than was considered normal, together with increased abnormal activity induced by hyperventilation (Lindsley, 1940). Bellinson and Cowie (1947) found a greater incidence of slow waves in institutional epileptics than in extra-mural types, which Wallin (1949) considers to agree with Lindsley’s findings because “personality disorder was the real reason for commitment, rather than the actual seizures”. Study of the literature, as well as experience in special schools for epileptics (which are frequently found to include a large proportion of maladjusted children) warns one to investigate carefully the significance of any correlations based on a survey of institutionalized groups.

The view is now more widely accepted that the “EEGs of a group of very bad children display more immaturities than do those of a group of good children” (Walter in Hill and Parr, 1952). “The type of bad behaviour most frequently associated with a relatively immature EEG”, says the same author, “is bad temper, violence and uncontrollability, (and) the main feature of the records in such cases is usually a particularly large and persistent theta rhythm.”

This “concept of maturation” is also referred to by Mayer-Gross *et al.* (1954), who think it probable that EEG maturation and psychic maturation proceed step by step, but the records obtained from children seem to be

much more complex and variable than was at first realized (Walter, *supra*). Walter and Dovey (1946), for instance, suggest as a result of their experiments in introducing needle electrodes deep into the white matter of the brain in cases of brain tumour, that possibly theta rhythms in many cases may be "indicative of synchronized activity at several depths".

It would certainly seem fruitful, however, to enquire further into the nature of the theta rhythm seen so frequently in problem children.

Walter (*supra*) points out that theta rhythms typically are responsive to external stimuli, and Travis and Johnson (1957), from experiments with two groups of 33 young deaf children and 33 non-deaf controls specifically concluded that "the theta rhythm is a valid measure of frustration-tolerance in young children". As yet there is still much to be done in the way of research in this field, but Walter suggests that since pathological theta rhythms may be a sign of relative immaturity, there is a possibility that moderate damage to an area giving rise to theta rhythms may establish what might be termed a "theta fixation". This theory arouses speculation as to whether the theta rhythms are *indicative* of behaviour disturbance or whether the "theta focus" is *causative*.

6. Treatment

(a) Medication and/or surgery

In spite of great advances in the past couple of decades, the treatment of epileptic children with psychosis or behaviour disorders by medication or by surgery is at present still a controversial subject (W.H.O., 1957). Apart from the extreme resort of leucotomy, a number of cases have been described (Falconer *et al.*, 1953; Pond and Bidwell, 1954), in which the excision of temporal foci appears to have brought relief, but time is yet young for a completely valid follow-up report.

Medication, although the largest school for epileptic children reports 47 per cent. discharged with fits controlled (C.S.U. Annual, 1958), is still largely empirical. Certain basic factors have been accepted, but still the main thing is the experimental individual adjustment of prescription and dosage, especially as regards idiosyncrasy of side-effects. New proprietary products are being offered with increasing rapidity, especially in America, and a new field is being gradually opened up in behaviour problem research by the acceptance of tranquillizers as a valid prescription for children (Gibbs and Stamps, 1958). These last workers deplore the "inadequate treatment of epilepsy by amateur and professional psychiatrists, with major emphasis on psychotherapy and little attention to medication". They stress the fact, however, that "when personality disturbances or psychosis are a major complication, the patient should be treated with whatever therapy is recommended by an informed psychiatrist". They also point out that although it is probable that hyperkinetic patients showing residual non-ictal behaviour disturbance will respond to tranquillizers (meprobamate, reserpine, chlorpromazine) together with the appropriate anti-convulsant drugs, it may be that control of the seizures will result in *increased* behaviour disorder. Phenurone, for example, although it may prove effective in controlling seizures in 50 per cent. of patients hitherto resistant to anti-convulsant drugs, seems particularly prone to exacerbate psychiatric disturbances in psychomotor patients (Gibbs, Everett and Richard, 1949). It should be clear that Phenurone merely intensifies an existent disorder and is unlikely to cause any new symptoms.

The apparent reluctance with which any drugs other than anti-convulsants are accepted in the literature for use with children appears to be merely traditional. Stafford-Clark (1952) says "in the management of (disturbed or sick children) the part played by drugs is small (and) . . . limited to specific anti-convulsant and anti-epileptic drugs for epilepsy in any form and the administration of Benzedrine compounds in the treatment of excessively aggressive, destructive or over-active children". Bradley (1937) too, mentions amphetamine—usually regarded as an excitant—as having a calming effect on the hyperkinetic child and "improving his behaviour and adaptation", as do Lindsley and Henry (1942) and Hill (1952).

Very recently, claims have been made for a new type of psychotherapeutic compound, Librium (methaminodiazepoxide), which is "not a manipulated phenothiazine, nor a meprobamate derivative nor an amine oxidase inhibitor" but which nevertheless acts as a tranquillizer, anti-depressant and anti-convulsant (Symposium: *Dis. nerv. Syst.*, 1960). This drug, it is claimed, provokes few side-reactions (Farb, 1960), is essentially "safe" with children and adults (Bowes, 1960), as well as being remarkably rapid in action (Constant, 1960).

Interesting in relation to behaviour (especially as it has also been claimed to have anti-convulsant properties (Kaim and Rosenstein, 1960) is its reported calming effect on induced rage in rats and monkeys (Randall *et al.* 1960) and on "classical psychopathic personalities with life-long histories of anti-social behaviour" in an American penitentiary (Kinross-Wright, 1960) where 16 out of 19 patients showed improvement after previous barbiturates, phenothiazines and other tranquillizers had failed to help.

Tetrabenazine is another compound which is being experimentally used in America (Heise, 1960) and in Germany (Stockhausen, 1960) for similar purposes. At any rate the appearance of these drugs in the field of behaviour research would seem to implement the succinct comment of Mayer-Gross *et al.* (1954) that "the field of pharmacological psychiatry in the child deserves closer study."

(b) Staff

In accepting the view that behaviour disorders of epileptic children spring to some extent from their reaction to environment and treatment, we have a field in which the trained layman can (and should be encouraged to) work side by side with the doctor and the psychologist. Pearson (1951), for instance, "would like to draw the reader's attention to the valuable observations that adequately trained teachers can make on children. Such teachers can be of great assistance in understanding the child's problem and in the treatment of the child." There is, however, a considerable dearth of such trained staff, and apparently also of aspirants of either sex having the basic personality characteristics and attitudes for undertaking the exacting task of living with and teaching these children.

A great deal of this shortage has an economic basis, but a great deal also is due to lack of provision of specialized training. To take only one example, Jersild (1957) maintains that "the concept of anxiety should be regarded as an essential topic in all teacher training" (Jersild, 1955, 1958; Jersild and Helfant, 1953), yet how many teachers, let alone attendants (who are required to produce less evidence of qualification for their jobs) have had any guidance in dealing with this major factor in the lives of their charges, or in many cases any conception of the extent to which it exists?

Human nature being what it is, perhaps the greatest danger of failure in the adult/child relationship has been described by Dennis (1956) as a "situation where the staff is more concerned in overcoming and suppressing symptomatic reactions of the patients, than in assisting their emotional development, with the many accompanying disappointing failures" (Clarke and Clarke, 1958).

It is perhaps a truism to say, with Zanker (1960) that "a very important factor in the correct handling of children with physical handicaps in an institution such as a residential school, is, of course, the personality of the tutor, teacher, housemother, dealing with such children". We may, however, well go further with him and stress that "it cannot be sufficiently emphasized that only through frank self-analysis, insight into his own emotional difficulties, his own ambitions, projections, rationalizations and similar psychological mechanisms, often unconscious or not admitted, can the very responsible task entrusted to the individual staff member be made easier and more successful" (Stubblebine and Roadruck, 1956). Pursuing the ideal still further, Zanker even thinks "it might be an advantage for the *parents* to be instructed regarding the spastic child's temperamental characteristics, so that parents from the beginning can make the necessary allowances for the greater difficulties in gaining the child's affection." The present author suggests that for "spastic" we might equally well read "epileptic".

(c) *Planning the treatment*

Assuming, however, that adequate staff (quantitatively and qualitatively) are forthcoming for any given institution, there still remains the need for devising an overall scheme and curriculum. A programme or a curriculum copied from or borrowed from some other institution or from a school of normal pattern will not necessarily fit the needs of a particular special school.

Gunzburg (in Clarke and Clarke, 1958), discusses the position of mental defectives in institutions, commenting on the scantiness of published work, which suggests that "very little thought and attention have been devoted to (remedial education for) mental defectives in institutions, no surveys have taken place, very few techniques have been developed, and not many results have been reported".

Society's attitude to the epileptic child is altering (W.H.O., 1957) in a direction away from segregation and the setting up of special colonies and hospitals which was in general the only provision a short time ago. Obviously there are many considerations to be taken into account before deciding that an epileptic child should live in the normal community. "It is the epileptic with the behaviour disorder who forms the most difficult school problem" (W.H.O., *supra*). An attempt has been made to treat such cases at the in-patient Child Guidance Clinic at the Maudsley Hospital, where it is hoped that usually a stay of a few weeks or months will enable the child once more to try to fit into a "normal" (even if E.S.N.) school.

Amongst epileptic defectives there are a number of children who, although by no means ineducable, would be quite out of place in any school, even one for very retarded E.S.Ns. The difference is not merely of academic level, nor of detailed teaching technique as much as of the whole conception—the whole philosophy—of the scheme. "The better the plan of instruction fulfils its purpose of making the feeble-minded a useful member of society", say Mayer-Gross *et al.* (1954), "the further will it be removed from the academic pattern of an ordinary school."

Both Gunzburg and O'Connor, writing in Clarke and Clarke (1958) give examples of the same outlook, the former stressing social training as a major factor (Wallin, 1924; Kirk and Johnson, 1951) and the latter considering that in institutional education "many factors relevant to learning such as . . . memory, curiosity, capacity for imitation, optimum conditions for exploration, trial and error learning, imaginative play and so on, have scarcely been explored" (Maier, 1949).

That this programme, even though unique in its adaptation to the needs of the particular child, must nevertheless paradoxically be made to approximate as nearly as possible to the community at large (for example, in being co-educational) is the view of Harris and Kinney (1947). In view of this paradox one may wonder with Hartwell (1940) whether after all the form of approach is of importance, since "all relationships are potentially therapeutic". It would seem that the Director of such a programme must be pre-required to be something of a genius! Yet even though such an ideal programme were in fact formulated and such a Director found, its application, which is the crucial thing, must be delegated to each and every member of the teaching and fostering staffs (Cotzin, 1948).

(d) *Discipline*

Since the "keynote of modern educational thought is individuality" (Burt, 1925), "the delinquent himself must be approached individually as a unique human being with a peculiar constitution, peculiar difficulties and peculiar problems of his own. . . . The aim must be, not punishment but treatment, and the target not isolated actions but their causes . . . (which assumes for their diagnosis a team comprising) . . . social investigator, . . . medical officer, . . . and psychologist. . . ."

Dunbar (1959) puts the problem of discipline in a nutshell when he says that "by the time a badly handicapped child has reached school age, he or she has established a totally different behaviour pattern from the majority of children in order to attain the same ends . . .", which brings us to one of the greatest, if not the greatest of difficulties encountered in a special school: that to which Stafford-Clark (1952) refers as the necessity of determining "the difference between naughtiness on the one hand and behaviour disorder, which is a medical problem, on the other". No one would suggest that a child should be allowed to "get away with it", but it is equally necessary to be quite sure that he is in fact trying to get away with it, before undertaking repressive or punitive measures, especially those involving physical coercion or corporal punishment. Strangely enough, in the problem of the unrestrainedly aggressive problem child, the answer may come with dramatic suddenness in response to the lifting, rather than increased imposition of restraint (Burt, 1925). Such treatment, however, with other apparently similarly affected children might result in chaos. Again we come back to the underlying principle that discipline with the maladjusted child lies in knowing the individual child inside out—a difficult enough task and one which essentially presupposes that the teacher "likes children". Further than this we can postulate that he or she must not only like children but like those who are most difficult to like: "Try to love the unlovable child—he needs it most" (Servante, 1927).

A final point might be made about epileptic children, who are more often than not retarded by various causes associated with their complaint so

that not only their academic work but also their general level of maturity is far behind normal. Earl (1936) has commented on the imbecile's emotional infantility. "He craves for caresses and protection like an infant. Judicious petting is the most potent stimulus to success in a task or in behaviour." In much the same way it can be agreed that epileptics will be helped by the individual interest and sympathy of those responsible for them.

(e) *Psychotherapy*

To what extent psychotherapy is effective in the treatment of epileptic behaviour problems is a question on which further research is needed (Gottschalk, 1953). Unfortunately conditions do not seem to permit of this being undertaken at many of the residential schools for epileptics from which one might have expected considerable guidance towards the best treatment of the maladjusted child in these institutions. The W.H.O. Report (1957) considers that "the place of psychotherapy of the individual child for the epileptic attacks *per se* is very limited" (which accords with Gibbs and Stamps, 1958), "but the broad approach to the child's problems along child guidance lines is of the greatest value". As Morgan (1950) points out, "many patients, particularly the younger ones, exhibit considerable emotional hunger", and if this is not satisfied by the provision of some positive attachment such as occurs in individual or group therapy, progress is bound to be limited or nil. Slavson (1950) has experimented with group therapy for children with behaviour problems, stressing the need for an environment in which the child can find at first an outlet for his aggression and anti-social behaviour without losing the affection and acceptance of the therapist. Then gradually the child can be brought to an understanding of the need for control and be helped to achieve it (Slavson, 1950, Stürup, 1952). The essential conditions for some degree of success in psychological treatment are summarized by Mayer-Gross *et al.* (1954) when they call for "a relationship with the patient that is based on a respect for his personality, a tolerance of his deficiencies and a sympathy and understanding of his predicament. . . . Disapproval of a patient's conduct is sometimes necessary, but criticizing him as a person, or treatment by moral exhortation is futile and can be disastrous. They agree with many other writers that "it is the most probable conclusion that any success that can be attributed to psychotherapy . . . is due to the personality of the therapist". The present author would suggest, in conclusion, that the personality of each and every teacher, houseparent, attendant, doctor or psychiatric worker is of more importance to the eventual well-being of the epileptic child than many a "scheme of training" or "educational curriculum". But to provide these workers with insight into the problems of behaviour which they have to face, more and yet more observation and research is crying out to be done amongst the maladjusted of all types and especially of epileptic tendencies.

SUMMARY

1. The general tendency in the literature is to admit that whilst certain classes epileptics, including institutional patients, temporal lobe cases and patients showing progressive deterioration—show strong evidence of extreme personality disturbance, there is little to show that this "typical" behaviour is in fact due to any "epileptoid personality".

2. The main anti-social characteristics which so many epileptics exhibit, for whatever reason, are irritability, temper and aggressiveness, together with a moodiness and emotional changeability.

3. It appears established that anti-convulsant medication has no primary effect on the personality, but control of seizures by this means may reveal psychopathic tendencies hitherto less obtrusive.

4. Structural cerebral damage may have some part to play in behaviour disorders, but beyond the fact that epilepsy due to temporal lobe foci is largely productive of problem behaviour, we cannot yet localize psychopathic symptoms in the brain.

5. A great deal of the disturbance previously thought to be due to epilepsy *per se*, is now considered a reaction to conditions imposed on the child by reason of its handicap, either as frustration of natural desires or of intolerance of institutional standards, routine or unenlightened treatment.

6. Deprivation or maltreatment in early childhood may account for some present disorders, but it is now questioned whether this has necessarily a permanent effect, and often prognosis is relatively better for such children following removal of the deprivation than for controls.

7. At least a component of the behaviour disorders seen may be an exacerbation of normal anxiety states which appear to a greater or less extent in normal children.

8. The part which personality tests can play in the diagnosis of behaviour disorders is not fully established, but investigations to date offer hope in this direction. The same comment would seem to apply to EEG findings. More conclusive research is needed and proceeding in both fields.

9. In spite of great advances in recent years, the treatment of epileptic children with psychoses or behaviour disorders by medication or by surgery is at present still a controversial subject. Although anti-convulsant medication is proving increasingly effective, the field of pharmacological psychiatry in the child deserves closer study.

10. It is probable that behaviour disorders of epileptic children spring very largely from their reaction to environment and handling. In addition to adequate and suitably trained staff, a carefully planned scheme of treatment (both anti-convulsant and psychotherapeutic) needs to be considered.

11. The contemporary attitude is that the treatment and education of the epileptic child shall, wherever possible, be within the framework of the normal community.

BIBLIOGRAPHY

- ABEL, T. M., "The relationship between academic success and personality organization among subnormal girls", *Amer. J. ment. Defic.*, 1945, **50**, 251.
- ABT, L. E., and BELLAK, L., *Projective Psychology*, 1950, New York: Knopf.
- ALLEN, R. M., "Why some girls run away", *Amer. J. ment. Defic.*, 1949, **53**, 438.
- ALSTRÖM, C. H., "A study of epilepsy in its clinical, social and genetic aspects", *Acta psychiat.*, Kbh., 1950, Supplement 63.
- ANDERSON, H. H., and ANDERSON, G. L., *An Introduction to Projective Techniques and Other Devices for Understanding Human Behaviour*, 1951. New York: Prentice-Hall.
- ANDREWS, T. G., "A factor analysis of responses to the comic as a study in personality", *J. gen. Psychol.*, 1943, **28**, 209.
- BELLINSON, L., and COWIE, W. S., "EEG characteristics of institutionalized epileptics", *Am. J. Orthopsychiat.*, 1947, **17**, 74.

- BENDER, L., "The Goodenough Test in chronic encephalitis in children", *J. nerv. ment. Dis.*, 1940, **91**, 277.
- Idem*, *Aggression, Hostility and Anxiety in Children*, 1953. Springfield, Ill.: Thomas.
- BUOU, S. W., "The psychometric pattern as an aid to clinical analysis—a review". *Amer. J. ment. Defic.*, 1942a, **46**, 354.
- Idem*, "A genetic study of the diagnostic significance of psychometric patterns", *Amer. J. ment. Defic.*, 1942b, **47**, 171.
- Idem*, "Behaviour efficiency as a determining factor in the social adjustment of mentally retarded young men", *J. genet. Psychol.*, 1944, **65**, 133.
- Idem*, and McCANDLESS, B., "An approach to a more comprehensive analysis of mentally retarded pre-delinquent boys", *J. genet. Psychol.*, 1944, **65**, 147.
- BOWLBY, J., *Maternal Care and Mental Health*, 1951. Geneva: W.H.O.
- Idem*, AINSWORTH, M., BOSTON, M., and ROSENBLUTH, D., "The effects of mother-child separation; a follow-up study", *Brit. J. med. Psychol.*, 1956, **29**, 211.
- BRADLEY, C., *Schizophrenia in Childhood*, 1941, New York: Macmillan.
- BRIDGE, E. M., "The mental health of epileptic patients", *Arch. neurol. Psychiat.*, 1934, **32**, 732.
- Idem*, *Epilepsy and Convulsive Disorders in Children*, 1949. New York: McGraw-Hill.
- BRILL, M., "Performance tests as aids in diagnosis of maladjustment", *J. genet. Psychol.*, 1936, **49**, 199.
- Idem*, "A study of instability using the Goodenough Drawing Scale", *J. abnorm. soc. Psychol.*, 1937, **32**, 288.
- BRILL, N. Q., SEIDEMANN, H., MONTAGUE, H., and BALSER, B. H., "EEG studies in delinquent behaviour problem children", *Amer. J. Psychiat.*, 1942, **98**, 494.
- BROWN, W. T., and SOLOMON, C. I., "Delinquency and the EEG", *Amer. J. Psychiat.*, 1942, **98**, 499.
- BUCK, J. N., "The H-T-P Technique", *J. clin. Psychol.* Monograph, Supplement 5.
- BUMKE, 1924, quoted in Mayer-Gross, *et. al.*, 1954.
- BURT, C., *The Young Delinquent*, 1952. London: U.L.P.
- CANNON, W. B., *Feelings and Emotions*, 1928, Worcester, Mass.: Wittenberg Symposium.
- CATTELL, R. G., *The Description and Measurement of Personality*, 1946. New York: World Books Co.
- CHASE, M. E., "The practical application of psychotherapy in an institution for the mentally deficient", *Amer. J. ment. Defic.*, 1953, **58**, 337.
- CLARKE, A. M., and CLARKE, A. D. B., *Mental Deficiency*, 1958. London: Methuen.
- CLARKE, A. D. B., CLARKE, A. M., and REIMANN, S., "Cognitive and social changes in the feeble-minded", *Br. Journ. Psychol.*, 1958, **49**, 144.
- COBB, W. A., MARTIN, F., and PAMPIGLIONE, G., "Cerebral lipidosis and the EEG", *Brain*, 1952, **75**, 343.
- CONRAD, K., "Heredity and epilepsy", *Z. ges. Neurol. Psychiat.*, 1937, **159**, 521.
- CONSTANT, G. A., "Preliminary report on the use of a new agent in depression and tension states", *Dis. nerv. Syst.*, 1960, **21** (Suppl.), 37.
- COTZIN, M., "Group psychotherapy with mentally deficient problem boys", *Amer. J. ment. Defic.*, 1948, **53**, 268.
- CRUICKSHANK, W. M., and BICE, H. V., in Cruickshank and Raus (Ed.): *Cerebral Palsy—Its Individual and Community Problems*, Chapter V. Syracuse University Press.
- C.S.U. REPORT, 1958. London: Christian Service Union.
- DENNIS, W. M., "A philosophy of discipline derived from a treatment program for mentally deficient adults", *Amer. J. ment. Defic.*, 1956, **60**, 423.
- DUNCAN-DUNBAR, J. C., "Education of multi-handicapped children at Penbury Grove School", *Special Education*, 1959, **9**, 13.
- EARL, C. J. C., "The human figure drawings of adult defectives", *J. ment. Sci.*, 1933, **79**, 305.
- Idem*, "The affective-instinctive psychology of imbecile children", *Brit. J. med. Psychol.*, 1936, **15**, 266.
- Idem*, "The performance test behaviour of adult morons", *Brit. J. med. Psychol.*, 1937, **17**, 78.
- Idem*, "A psychology for morons", *J. abnorm. soc. Psychol.*, 1940, **35**, 428.
- FARB, H. H., "Experience with Librium in clinical psychiatry", *Dis. nerv. Syst.*, 1960, **21** (Suppl. 3), 27.
- FARRELL, M. J., and FORSLEY, E., "Enhancing patients' adjustment by means of group sessions with attendants", *Amer. J. ment. Defic.*, 1956, **60**, 603.
- FRANK, L. K., "Projective methods for the study of personality", *Journ. Psychol.*, 1939, **8**, 389.
- FRASER, A. W., "Reduction of runaways among trainees at a government training school", *Amer. J. ment. Defic.*, 1951, **56**, 185.
- FUCHS, 1947, quoted in Tylor Fox, 1950.
- GANN, E., "Reading difficulty and personality organization", 1945. New York: King's Crown Press.
- GATES, G. S., "An observational study of anger", *Journ. exp. Psychol.*, 1926, **9**, 325.
- GIBBS, F. A., and STAMPS, F., *Epilepsy Handbook*, 1958. Oxford.

- Idem, EVERETT, G. M., and RICHARD, R. K., "Phenurone in epilepsy", *Dis. nerv. System*, 1949, **10**, 47.
- GOLDFARB, W., "The effects of early institutional care on adolescent personality", *J. exp. Educ.*, 1943, **12**, 106.
- Idem, "Psychological deprivation in infancy", *Amer. J. Psychiat.*, 1945, **102**, 19.
- Idem, "Variations in adolescent adjustment of institutionally reared children", *Amer. J. Orthopsychiat.*, 1947, **17**, 499.
- GOLDSTEIN, K., and SCHEERER, M., "Abstract and concrete behaviour: an experimental study", *Psychol. Monogr.*, 53, No. 2.
- GOODENOUGH, F. L., *Measurement of Intelligence by Drawing*, 1926. New York: World Book Co.
- GOTTLIEB, J. S., ASHBY, M. C., and KNOTT, J. R., "EEG evaluation of primary behavior disorders in children", *Arch. Neurol. Psychiat.*, 1945, **53**, 138.
- GOTTSCHALK, L. A., "Effects of intensive psychotherapy on epileptic children", *Arch. neurol. Psychiat.*, 1953, **70**, 361.
- GUNZBURG, H. C., "The colony and the high-grade mental defective", *Ment. Hlth.*, 1950, **9**, 87.
- Idem, "Maladjustment as expressed in drawings by subnormal children", *Amer. J. ment. Defic.*, 1952, **57**, 9.
- Idem, "Scope and limitation of the Goodenough Drawing Test method in clinical work with mental defectives", *J. clin. Psychol.*, 1955, **11**, 8.
- Idem, "A short version of the Kohs Block Test", *J. Midland ment. Def. Soc.*, 1956, **2**, 20.
- Idem, in Clarke and Clarke, 1958. Chapters. XI and XV.
- HALL, M. B., *The Psychiatric Examination of Schoolchildren*, 1947. London: Arnold.
- HALSTEAD, H., "Abilities and behaviour of epileptic children", *J. ment. Sci.*, 1957, **103**, 430.
- HAMLIN, R., "Test pattern of high-grade mentally deficient girls", *Proc. Amer. Assoc. ment. Defic.*, 1938, **43**, 161.
- HARLOW, H. F., "The formation of learning sets", *Psychol. Rev.*, 1949, **56**, 51.
- HARRIS, L. A., and KINNEY, C., "A program for reducing maladjustments in an institution for the mentally deficient", *Amer. J. ment. Defic.*, 1947, **52**, 78.
- HARTWELL, S. W., *Fifty-five "Bad" Boys*, 1940. New York: Knopf.
- HARTY, J. E., GIBBS, E. L., and GIBBS, F. A., "An EEG study of 274 candidates for military service", *J. nerv. ment. Dis.*, 1942, **96**, 435.
- HAWKES, C. D., and ROARK, M., "EEGs of behaviour problem children", *EEG. clin. Neurophysiol.*, 1951, **3**, 105.
- HEALY, W., *The Individual Delinquent*, 1915. Boston: Little, Brown & Co.
- HEBB, D. O., *The Organization of Behaviour*, 1949. London: Chapman & Hall.
- HEISE, G. A., "Behavioural analysis of Tetraabenazine in animals", *Dis. nerv. Syst.*, 1960, **21** (Suppl. 3), 111.
- HENDERSON, P., "Epilepsy in schoolchildren", *B. Journ. prev. soc. Med.*, 1953, **7**, 9.
- Idem, "The epileptic child", *Practitioner*, 1955, **174**, 394.
- HENDERSON, D. K., and GILLESPIE, R. G., *Text-book of Mental Deficiency*, 1956. London: O.U.P.
- HEPPENSTALL, M., HILL, D., and SLATER, E., "The EEG in the prognosis of war neurosis", *Brain*, 1945, **68**, 17.
- HERD, H., *The Diagnosis of Mental Defect*, 1930. London: Hodder & Stoughton.
- HILL, J. D. N., and PARR, G., *Electroencephalography*, 1952. London: Macdonald.
- HILL, D. (1952): Chap. XI in Hill and Parr (1952).
- Idem, and WATTERSON, D., "EEG studies of psychopathic personalities", *J. neurol. Psychiat.*, 1942, **5**, 47.
- HINRICH, W. E., "The Goodenough Drawing Test in relation to delinquency and problem behaviour", *Arch. Psychol.*, 1935, **175**, 1.
- HODSKINS, M. B., and YAKOLEV, P. I., "Neurosomatic deterioration in epilepsy", *Arch. neurol. Psychiat.*, 1930, **23**, 986.
- JASPER, H. H., SOLOMON, C. I., and BRADLEY, C., "EEG frequency analyser traces of behaviour problem children", *Amer. J. Psychiat.*, 1938, **93**, 641.
- JENKINS, R. L., and PACELLA, B. L., "EEGs of delinquent boys", *Amer. J. Orthopsychiat.*, 1943, **13**, 107.
- JERSILD, A. T., *When Teachers Face Themselves*, 1955. Columbia University Press.
- Idem, *The Psychology of Adolescence*, 1957. New York: Macmillan.
- Idem, and HELFANT, K., *Education for Understanding*, 1953. Columbia University Press.
- JONES, H. G., "Experimental studies in the psychology of epilepsy", *Rev. Psychol. appl.*, 1953, **3**, 209.
- KANNER, L., *Child Psychiatry*, 1948. London: O.U.P.
- KEATING, L. E., "A Review of the literature on the relationship of epilepsy and intelligence", *J. ment. Sci.*, 1960, **106**, 1042.
- KENNARD, M. A., RABINOVITCH, S., and FISTER, W., "Use of frequency analysers in interpreting EEGs of patients with psychological disorders", *EEG and Clin. Neurophysiol.*, 1954, **6**, 701 (Abs.).

- KIMBALL, —, personal communication to PENFIELD and ERIKSON, 1941.
- KINROSS-WRIGHT, J., COHEN, I. M., and KNIGHT, J. A., "The management of neurotic and psychotic states with Librium", *Dis. nerv. Syst.*, 1960, **21** (Suppl. 3), 23.
- KIRK, S. A., and JOHNSON, G. O., *Educating the Retarded Child*, 1951. Boston: Houghton Mifflin.
- KLEIN, E., Chapter in *The Reluctance to Go to School*, 1945, Ed. Fernichel. New York.
- KREYENBORG, G., "Körperbau, Epilepsie und Character", *Z. f. des Neur. u. Psychiat.*, 1928, **112**, 506.
- LENDE, N., "Psychosedative effects of Tetrabenazine on hyperactive and disturbed mentally retarded patients", *Dis. nerv. Syst.*, 1960, **21** (Suppl. 3), 118.
- LEWIS, E. O., *Report of the Mental Deficiency Committee*, 1929. London: H.M.S.O.
- LINDSLEY, D., "A longitudinal study of the occipital alpha rhythm in normal children: frequency and amplitude standards", *J. genet. Psychol.*, 1939, **55**, 197.
- Idem*, and CUTTS, R. A., "The EEG in behaviour problems", *Arch. Neur. Psychiat.*, 1940, **4**, 1199.
- MACHOVER, K., *Personality Projection in the Drawing of the Human Figure*, 1949. Springfield, Ill.: Thomas.
- MCILWAINE, H., *Biochemistry and the C.N.S.*, 1955. London: Churchill.
- MAIER, N. R. F., *Frustration: The Study of Behaviour Without a Goal*, 1949. New York: McGraw-Hill.
- MASSERMAN, J. H., *Behaviour and Neurosis*, 1943. Chicago: University Press.
- MAUZ, F., *The Predisposition of Convulsions*, 1937. Leipzig.
- MAYER-GROSS, W., SLATER, E., and ROTH, M., *Clinical Psychiatry*, 1954. London: Cassell.
- MORGAN, J. J. B., *The Psychology of the Maladjusted Child*, 1950. New York: Macmillan.
- MYERS, D. A., and BRECHER, S., "So-called epileptic personality investigated by the Kent-Rosanoff test", *J. abnorm. soc. Psychol.*, 1941, **36**, 413.
- O'CONNOR, N., "The evidence for the permanently disturbing effects of mother-child separation", *Acta Psychol.*, 1956, **12**, 174.
- Idem*, in CLARKE and CLARKE, 1958, Chapters VII and VIII.
- OUNSTED, C., *Lancet*, 1953, *ii*, 203.
- PEARSON, G., *Emotional Disorders of Children*, 1951. London: Allen & Unwin.
- PENFIELD, W., and ERIKSON, T. C., *Epilepsy and Cerebral Localisation*, 1941. Ballière, Tindall & Cox.
- POND, D. A., "Psychiatric aspects of epilepsy in children", *J. ment. Sci.*, 1952, **98**, 404.
- Idem*, and BIDWELL, B., "Management of behaviour disorders in epileptic children", *Brit. med J.*, 1954, 4903, 1520.
- POPPELSTONE, J. A., "The validity of projective interpretations of art products of mentally retarded individuals", *Amer. J. ment. Defic.*, 1954, **59**, 263.
- PUTNAM, T. J., *Convulsive Seizures*, 1945. New York: Lippincott.
- Idem*, and MERRITT, H. H., "Dullness as an epileptic equivalent", *Arch. Neurol. Psychiat.*, 1941, **45**, 797.
- RANDALL, L. O., "Pharmacology of Methaminodiazepoxide", *Dis. nerv. Syst.*, 1960, **21**, (Suppl. 3), 7.
- ROSENSTEIN, I. N., "A new psychosedative (Librium) as an anti-convulsant in Grand Mal type seizures", *Dis. nerv. Syst.*, 1960, **21** (Suppl. 3), 57.
- RUF, H., "Experiments on prolongation of induced epileptiform convulsions in the cat", *J. ment. Sci.*, 1952, **98**, 454.
- SARASON, S. B., and POTTER, E. H., "Color in the Rorschach and Kohs Block Designs", *J. consult. Psychol.*, 1947, **11**, 202.
- SCHOLTZ, H., "Brain damage due to convulsions", *Mschr. a.d. Gebret. Neurol. Psychiat.*, 1951.
- SCHWAB, R. S., "A method of measuring consciousness in attacks of petit mal", *Arch. Neurol. Psychiat.*, 1939, **41**, 215.
- SCHWAB, S. I., and VEEDER, B. S., *The Adolescent*, 1929. New York: Appleton.
- SCOTT, —, personal communication to W.H.O. Tech. Report, 1957.
- SECUNDA, L., and FINLEY, K. H., "EEG studies of children presenting behaviour disorders", *New Engl. J. Med.*, 1942, **226**, 850.
- SERVANTE, F., *The Psychology of the Boy*, 1927. London: Gay & Hancock.
- SHAPIRO, M. B., "Experimental studies of a perceptual anomaly: I. Initial experiments", *J. ment. Sci.*, 1951a, **97**, 90.
- Idem*, "An experimental approach to diagnostic testing", *J. ment. Sci.*, 1951b, **97**, 748.
- Idem*, "An experimental investigation of the Block Design rotation effect", *Brit. J. med. Psychol.*, 1954, **27**, 84.
- SLAVSON, S. R., *Analytical Group Therapy*, 1950. Columbia University Press.
- SLOAN, W., and CUTTS, R. A., "Test patterns of defective delinquents on Wechsler-Bellevue test", *Amer. J. ment. Defic.*, 1945a, **50**, 95.
- Idem*, "Test patterns of adjusted defectives on Wechsler-Bellevue test", *Amer. J. ment. Defic.*, 1945b, **50**, 98.

- SOLOMON, C. I., BROWN, W. T., and DEUTSCHER, M., "EEG in behaviour problem children", *Amer. J. Psychiat.*, 1944, **101**, 51.
- SPITZ, R. A., "Hospitalism: an enquiry into the genesis of psychiatric conditions in early childhood", *Psychoanal. Stud. Child.*, 1945, **1**, 53.
- SPRINGER, N. N., "A study of the drawings of maladjusted and adjusted children", *J. genet. Psychol.*, 1941, **58**, 131.
- STAFFORD-CLARK, D., *Psychiatry Today*, 1952. London: Pelican Books.
- STAUDER, —, *Konstitution und Wesenänderung der Epileptiker*, 1938. Leipzig: Thieme.
- STENGEL, E., "Further studies on pathological wandering", *J. ment. Sci.*, 1943, **89**, 224.
- STOCKHAUSEN, F. G., "Clinical studies with Tetrabenazine", *Dis. nerv. Syst.*, 1960, **21** (Suppl. 3), 115.
- STODGILL, R. M., "Some behaviour adjustment techniques in use with mentally retarded children", *J. except. Child.*, 1938, **5**, 25.
- STRAUSS, A. A., RAHM, —, and BARRERA, —, *Amer. J. Psychosom. Med.*, 1940, Jan., 34.
- STROZKA, H., *Arch. psychiat. Nervenkr.*, 1954, **192**, 34.
- STUBBLEBINE, J. M., "Group Therapy with some epileptic M.D. patients", *Amer. J. ment. Defic.*, 1957, **61**, 725.
- Idem*, and ROADRUCK, R. D., "A treatment program for mentally defective adolescents", *Amer. J. ment. Defic.*, 1956, **60**, 552.
- SYMONDS, P. M., *Adolescent Fantasies*, 1949. Columbia University Press.
- TAKERTA, J. H., and KATZ, J., "Correlation of EEG and psychological pattern in emotionally disturbed children", *EEG clin. Neurophysiol.*, 1951, **3**, 376 (Abs.).
- THORNE, F. C., "Principles of personality counselling: an eclectic viewpoint", *J. clin. Psychol.*, Brandon, Vermont.
- TINBERGEN, N., *A Study of Instincts*, 1951. Oxford: Clarendon Press.
- TIZARD, J., in CLARKE and CLARKE, 1958, Chapter VII.
- TRAVIS, L. E., and JOHNSON, E., "The Theta Rhythm as an index of frustration", *EEG clin. Neurophysiol.*, 1957, **3**, 376 (Abs.).
- TYLOR FOX, J., "Epilepsy", *Recent Progress in Psychiatry*, Vol. II, 1950. (*Journal of Mental Science*.)
- WALLIN, J. E., *Children with Mental and Physical Handicaps*, 1949. New York: Staples.
- WALTER, W. G., in HILL and PARR, 1952, Chapter VII.
- Idem*, and DOVEY, V. J., "Delimitation of sub-cortical tumours by Direct Encephalography", *Lancet*, 1946, *i*, 5.
- WILE, I. S., and DAVIS, R. M., "A comparative study of the Kohs Block tests", *Amer. J. Orthopsychiat.*, 1936, **1**, 89.
- Idem*, "The use of the Kohs test as an indicator of mental confusion", *Amer. J. Orthopsychiat.*, 1936, **6**, 89.
- WILLIAMS, D., "The significance of an abnormal EEG", *J. neurol. Psychiat.*, 1941, **115**, 257.
- WORLD HEALTH ORGANIZATION, Technical Report No. 130, "Juvenile Epilepsy", 1957. London: H.M.S.O.
- YOUNG, P. T., "Laughing and weeping, cheerfulness and depression: a study of moods among college students", *Journ. soc. Psychol.*, 1937, **8**, 311.
- ZANKER, A., "The handling of cerebral palsied children", *Spastics News*, 1960, **7**, 14.
- ZIEHEN, TH., *Mental Diseases in Children*, 1926. Berlin.

TREATMENT OF PSYCHOPATHS*

By

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DR. SCOTT has outlined the varieties of treatment which have been suggested for psychopaths and some of the varieties which may be suitable for certain methods.

In my own contribution to this discussion I should like to look at the problem from rather a wide angle. We are all painfully aware that there are many varieties of psychopaths. Apart from the various specific forms of treatment—whether drug treatment, individual or group therapy, community treatment, and so on—there are the different broad objectives of treatment to be considered—treatment which aims at being curative, or expectant, or mainly supportive. In relation to psychopaths the general setting of treatment becomes particularly important. It is an entirely different matter to select cases who might be very suitable for some method or special facility, or to have to treat cases which have already been selected and are subject to some special form of detention. Dr. Stürup, the Director of Herstedvester Psychopathic Prison in Denmark, who has an unrivalled experience with adult psychopaths, has often observed that to find yourself in charge of a man who may stay with you for life unless you can evolve some way of helping him, is a great stimulus to invention and may force one, as it does him, to experiment quite freely.

We have all read of the various methods of treatment which have been used. The overriding questions, however, seem to be—Who are they to be applied to? When and where are they to be applied? and even why are they to be applied? The answers to these questions at present may be a more important aspect of treatment than the detailed methods used.

In a difficult question of this kind it seems particularly important to keep to the limits of one's own experience and not to make a selection of other people's experience as if it were one's own. Apart from remand home work with adolescent girls, mine has been largely in making certain research studies, and I should like to confine myself to the relevant parts of those.

If we regard psychopaths as those showing abnormalities sometimes akin to neuroses and sometimes to psychoses, but having in common that there is a marked positive behaviour disorder, then the behaviour disorder tends to fall mainly into four classes; the criminals, those with alcoholism and drug addiction, those with sexual and marital disorders, and those with employment disorders. The Mental Health Act rather warns us off the sexual disorders and the criminal law itself defines them very conservatively, but there are of course varied relationships between these types of presenting disturbance, and a particularly close one between employment disorder and criminal behaviour. Presumably, we are dealing only with criminal psychopaths today. In this we are particularly fortunate because the law defines

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criminal behaviour very exactly; and, even more important, nearly everyone accepts the necessity and justice of the criminal law; even the psychopath knows that he has got something coming to him. We are able or hope to offer treatment which is an alternative or is related to other forms of social action.

If criminal behaviour is at least one of the criteria of the "abnormally aggressive and seriously irresponsible conduct", then one must ask what relationship there is between crime and psychopathic personality and what are the implications for treatment. On this question I should like to mention a study which has already been published—I must apologize if it is already known to you. In 1948 Dr. Stafford Clark with Drs. Pond and Lovatt Doust examined a group of 77 quite severe adult psychopaths in prison, together with some control prisoners. Since then, the Prison Commission has been supplying me with their subsequent convictions, and is still doing so. We made a search to show that they are still alive and the Board of Control searched to see how many were in mental hospitals and therefore not in circulation. In fact far fewer had entered mental hospitals than one might expect.

The result of the follow-up was that the vast majority of the psychopaths had had serious subsequent convictions, and the controls had had the usual small number of reconvictions. The outlook for the aggressive psychopaths was certainly much worse, though many of their subsequent sentences were only fines for drunken assaults upon the police, and so on. The interesting finding, however, was that 24 per cent. of these serious psychopaths had had no subsequent convictions or at most only one minor offence in eight years. Moreover, if you balanced the psychopaths and controls for previous convictions and took only those in both groups who had between 1—4 previous convictions, the subsequent criminal records of the psychopaths did not seem any worse than of the criminals. So far as the evidence went—and of course it needs to be repeated—if you are a young psychopath and not aggressive the outlook for continuing in a life of crime is no worse than if you are normal. There was some suggestion that if an inadequate or non-aggressive psychopath had an abnormal EEG, this was a *favourable* sign. The probability is that an abnormal EEG is sometimes a bad sign but sometimes quite a favourable sign since it offers a hope of some radical change whether spontaneous or therapeutic. It is going to be very important to pick out a group for whom the outlook may be quite favourable with only expectant and protective treatment. Of course, the psychopaths who had not committed any more crimes may still be psychopathic and may have turned their attention to promiscuity or alcoholism.

This brings us face to face with one of the great dilemmas in forensic psychiatry—is a psychopath only diagnosed by being a recidivist; are all recidivists by definition psychopaths? Professor Baan, Director of the Van der Hoeven Institution for psychopathic offenders in Holland, is strongly committed to the view that recidivists may have a crust of pseudonormality but can be shown by psychiatric treatment to be grossly abnormal in the psychiatric sense. And the United Nations Consultative Group for the Prevention of Crime and Treatment of Offenders, which I attended as representative of the World Health Organization, have concluded after two years' study that abnormal offenders are simply habitual offenders. But surely to leave matters like that, and to make social adjustment the criterion of mental health, is to admit to psychiatric bankruptcy. It may be true in practice that habitual offenders are mentally abnormal, but mental healing is often accom-

panied by social re-orientation, not always in the direction of conventionality, and it seems important to differentiate varieties of psychiatric disturbance within this social category. The Mental Health Act, at least, leaves open the criterion of "disorder or disability of mind" and does not say that a person's abnormality is defined by failure to respond to the usual methods of management.

The second study I should like to refer to concerns a carefully randomized series of 200 Borstal boys who have been examined in the last few years. In a sense, Dr. Scott's main concern is with juveniles and Dr. Roper's with adults. I should like to emphasize the importance of this young adult age group of 17—21 which by implication receives a good deal of attention in the Mental Health Act. In the past we have put rather too much emphasis on the juvenile delinquent as the source of recruitment of adult recidivists and chronic offenders. Among 75 preventive detainees in their middle thirties and forties with long criminal careers who were seen recently by an Advisory Board which deals with release, no less than 54 per cent. had no convictions as juveniles (40 per cent. if one excluded those over 16 in 1933 or in institutions, etc. as juveniles) and 24 per cent. did not even have a conviction before 21. The psychiatric syndromes of adult life become more clearly defined at this age; it may also be a time when mental readjustments are made which involve chronic social maladjustment.

These 200 lads, every other lad sentenced to Borstal from Greater London during the relevant period, were examined, somatotyped and given some additional psychological tests. After a year, as many as possible were examined again in their training institutions and their cases were discussed with the housemasters. I should like to say at once that it is very encouraging to see what an improvement there is in general well-being in the course of a year: Borstal training offers a great deal to lads of this age.

Reviewing them from the psychiatric point of view, the more obvious features were, first, that some were more abnormal mentally than others. There were 27 per cent. who had features of psychiatric interest—neurotic or psychopathic features and occasionally possibly pre-psychotic features (Borstal lads are medically examined before sentence, and there was only one actual schizophrenic). This agrees with Dr. Wardrop's estimate of about 35 per cent. of Borstal lads in Scotland who are seriously disturbed. Apart from the schizophrenic, however, there did not seem to be any cases which were really unsuitable for Borstal in the sense of being likely to obtain much more profit from other available forms of treatment. At the other end of the range there were 60 per cent. who had to be regarded as mentally normal although they had just as often suffered serious stresses and showed as many conflicts with outside events. At least they were certainly not cases for psychiatric intervention. In the middle there were 13 per cent. whom one could only call "problem cases" because they presented such an intricate mixture of social and personal maladjustments.

The second feature was that both the abnormal and the normal groups contained those with varying grades of criminal prognosis, so far as one could judge. It seemed important to hold fast to the fact that of two relatively minor offenders with good prognosis, one might be definitely neurotic and the other not, and there were normal cases as well as psychopaths whose prognosis appeared to be exceptionally bad for the immediate future.

When the normal and abnormal groups were contrasted in the objective factors of their social history there were two associations with abnormality

which were very clearly marked. First the mentally abnormal youths had often committed the offences alone and were free from association with groups or other criminal friends. Very often, like children, they stole from home or broke into their own gasmeters, and so on. Secondly, at least a third of them were torn by obvious sexual conflicts very often centring around homosexuality. Crime is in the main a masculine activity, although there is no reason to suppose that girls are less often the subject of severe deprivations or are less often psychopathic; and as Adelaide Johnson has said, girls seem to steal from home in early years as often as boys. But much crime represents the pursuit of an image of excessive masculinity and it is perhaps logical that disturbed lads should have conflicts about sexual identification.

The incidence of abnormalities in the 200 lads was as follows: There were first five cases of relatively minor or even incidental neurosis of a sort which would have been accepted for treatment on probation but might well respond to Borstal training without any specific treatment. There were three excessively timid neurotics whose whole attitude to life is as if they have been cast into a den of lions. They shrink from everything and produce somatic symptoms extremely easily. They are, I think, very difficult cases because they arouse little sympathy and very easily become surly, resentful and self-pitying. This sort of personality is well-represented among preventive detainees.

Five were what might be called serious concealed neurotics who are often accepted as good training prospects. They are quiet, intelligent, very co-operative, from a good background; but detailed examination shows them to have severe conflicts about homosexuality or that their offences were fetishistic, and so on. They are extremely reserved and especially likely to escape attention.

Four were florid hysterical cases of the sort which would often be called hysterical psychopaths, or personalities showing periodic psychopathic reactions, moving from one dramatic crisis to another. Again, they are intelligent and very co-operative and almost too ready to admit that they are grossly unstable, committing pointlessly impulsive thefts or frauds which are bound to be detected, punctuated by suicidal attempts when things go wrong. And there were five very unstable overt homosexuals.

Now these groups, who represent the abnormals with a better prognosis, and whom I have called neurotic—although there is naturally a high degree of acting-out behaviour—seemed in many cases to be suitable for the recognized forms of individual or group psychotherapy, possibly within the Borstal system. Out of the 200 only one lad was kept behind in prison to receive psychiatric treatment—and of course there are few who are likely to profit more from psychotherapy in prison than from the wider and more vigorous training in an open Borstal without psychotherapy. Altogether there were 15 cases or seven per cent. who seemed to satisfy the classical criteria for psychotherapy of being intelligent, able to see themselves as problems and quite willing to co-operate in any help offered. The great difficulty is that many of them show a very good response to Borstal training alone. It may be clear that their essential problems have not been touched, but nevertheless they show a great overall improvement in adjustment. It is a question whether this is merely a transitory institutional adjustment or whether it is really sufficient to divert them from further crime.

The remaining abnormals presented a much darker picture of increasing degrees of psychopathy. They are of course much more difficult to categorize

briefly. There were seven cases of severe personality damage from early deprivation which seemed to have led to disintegration rather than distortion of personality, with a completely ambivalent or disorganized attitude to their families, with sometimes a vivid phantasy life which gave rise to quite unpredictable behaviour. Perhaps the main characteristic is that there is more anxiety about the future development of a psychosis than about future crime, although the lads were socially quite incompetent in the brief time when they were at liberty.

Then there were six crude and primitive psychopaths from a background of family violence and the lowest standards who showed much latent aggression and perhaps casual sexual perversion ; six borderline defectives with added complications; four cases of persistent wandering and escaping since the earliest years which present so many problems; and some others. Lastly, there were four compulsive thieves who must be included I think among the psychopaths. They tend to assume an almost standard syndrome. Highly intelligent, intensely deprived, very friendly and co-operative; quite unable to prevent themselves stealing from anyone who helps them or establishes some sort of relationship. They have no friends of their own age and certainly no delinquent associations of any kind; their ambitions are to be architects, doctors, commercial artists, etc. They have often been recognized as abnormal all along, and in these actual cases had had psychiatric treatment on and off all their lives until they were 18 or 19, without avail except that it had kept them detached from delinquent groups; they could still view their stealing as a symptom.

It is of course in relation to these more seriously psychopathic groups that the question of alternative treatment arises. And here again the difficulty emerges that some of them make a tolerable adjustment to Borstal training. Many start by being sent to a permissive type of institution where they receive much personal attention, but they fail to live up to the simple responsibilities required and have to be transferred to more closed and heavily supervised institutions. But many are not actively difficult or disruptive, so that from the point of view of the institutions, they do not stand out as necessitating some other form of care.

When these cases were reviewed from the point of view of the Mental Health Act, it was concluded that 5 or 10 per cent. would at least be candidates, if not finally selected, for mental institutional care which would presumably aim at trying to secure an adjustment to subsequent hostel care, and so on, as a form of long-term support. The main criterion was one of incapacity and incompetence. About half of these selected cases were very dull in addition to other deficiencies, and it seemed that quite a number recognized dimly that they were incompetent to manage their own lives, but were prevented from co-operating voluntarily by periods of irritability and resentment which were not necessarily long-lasting. They not only needed long-term support but seemed capable of being helped to understand that it might benefit them.

Nothing has been said about aggressive psychopaths and abnormal aggressiveness as a special feature in diagnosis. Among the 200 there was no case which I thought could be diagnosed as an aggressive psychopath, though there were many incompetent psychopaths. I do not doubt that they exist, and in fact one was found among Borstal lads who were interviewed because they were twins—an extremely dull and unmanageably aggressive lad from a family of aggressive alcoholics and prize-fighters, who had fought

everyone from his earliest years and whose main interest was in razor fights. He had physically attacked almost all those of both sexes who had tried to help him. The diagnosis proved reasonable, for within a month in a closed Borstal he had organized a riot, hit an officer over the head with an iron bar and had his sentence commuted to imprisonment. When interviewed again in prison he was much more contented, said he preferred doing very little and not being badgered and that the strict rules helped him to avoid going too far. He was intensely proud of having a patch on his arm to denote that he was on the escape list and of being forbidden certain entertainments or special association. His twin brother had also been commuted to prison for hitting an officer some months before, and the element of fraternal competition in violence was quite obvious.

The question of abnormal aggressiveness needs very careful consideration. It was very instructive to go round all the Borstal institutions and find that aggressiveness is practically never mentioned as an important or disturbing aspect of behaviour. There was much anxious mention of failure to learn a trade or to be responsible or to show initiative, but it would only be mentioned at the end of the discussion without much interest that of course the lad in question had sometimes been violent. This was accepted and usually regarded as quite a healthy sign; its absence was often mentioned with anxiety. This seemed to me extremely wise and instructive. The second observation was that the aggressive outbursts which *did* appear disturbing were shown by the lads who had been diagnosed (or left undiagnosed) as "problem cases", with poor prognosis; and it seemed to me that the future aggressive psychopaths were possibly coming from this group who showed a severe personal disturbance, together with a severe social disturbance in the form of gang association or acceptance of criminal behaviour. Severe aggressiveness appeared very often to have a social and cultural aspect—that the lad felt aggressive but then found that he could gain a reputation with his friends or establish some self-respect by developing his aggressiveness. It is socially facilitated even in the most serious cases, and not merely in the simple and obvious examples. And while he is prepared to be punished for it as a manly virtue, his resentment might become unmanageable if he found that it was regarded as a mental abnormality. Whatever steps are taken to treat psychopaths, I believe that the proper allocation of the aggressive cases will need quite separate consideration and study.

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